CE EMC TEST REPORT

REPORT NO. : CE951004H04F

MODEL NO. : ES3528M-PoE

RECEIVED : Oct. 04, 2006

TESTED : Oct. 05 to 17, 2006

ISSUED : Dec. 23, 2009

APPLICANT : Accton Technology Corporation

ADDRESS : No. 1, Creation Rd. III, Science-based Industrial Park, Hsinchu, Taiwan, R.O.C.

ISSUED BY : Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

LAB LOCATION 1: No. 47, 14th Ling, Chia Pau Tsuen, Lin Kou Hsiang, Taipei Hsien 244, Taiwan

LAB LOCATION 2: No. 81-1, Lu Liao Keng, 9 Ling, Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien, Taiwan, R.O.C.

This test report consists of 75 pages in total. It may be duplicated completely for legal use with the approval of the applicant. It should not be reproduced except in full, without the written approval of our laboratory. The client should not use it to claim product endorsement by TAF, NVLAP or any government agencies. The test results in the report only apply to the tested sample. The test results in this report are traceable to the national or international standards.

Testing Laboratory 2021

LAB CODE: 200836-0

Table of Contents

1 CERTIFICATION 5
2 SUMMARY OF TEST RESULTS 6
2.1 MEASUREMENT UNCERTAINTY 7
3 GENERAL INFORMATION 8
3.1 GENERAL DESCRIPTION OF EUT 8
3.2 GENERAL DESCRIPTION OF TEST MODE 9
3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS 10
3.4 DESCRIPTION OF SUPPORT UNITS 11
4 EMISSION TEST 14
4.1 CONDUCTED EMISSION MEASUREMENT 14
4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT 14
4.1.2 TEST INSTRUMENTS 14
4.1.3 TEST PROCEDURE 15
4.1.4 DEVIATION FROM TEST STANDARD 15
4.1.5 TEST SETUP 15
4.1.6 EUT OPERATING CONDITIONS 16
4.1.7 TEST RESULTS 17
4.2 CONDUCTED EMISSION MEASUREMENT AT TELECOMMUNICATION PORTS 19
4.2.1 LIMIT OF CONDUCTED COMMON MODE DISTURBANCE AT TELECOMMUNICATION PORTS 19
4.2.2 TEST INSTRUMENTS 20
4.2.3 TEST PROCEDURE 21
4.2.4 DEVIATION FROM TEST STANDARD 21
4.2.5 TEST SETUP 22
4.2.6 EUT OPERATING CONDITIONS 23
4.2.7 TEST RESULTS (MODE 1) 24
4.2.8 TEST RESULTS (MODE 2) 25
4.2.9 TEST RESULTS (MODE 3) 26
4.3 RADIATED EMISSION MEASUREMENT 27
4.3.1 LIMITS OF RADIATED EMISSION MEASUREMENT 27
4.3.2 TEST INSTRUMENTS 27
4.3.3 TEST PROCEDURE 28
4.3.4 DEVIATION FROM TEST STANDARD 28
4.3.5 TEST SETUP 29
4.3.6 EUT OPERATING CONDITIONS 29
4.3.7 TEST RESULTS 30
4.4 HARMONICS CURRENT MEASUREMENT 32
4.4.1 LIMITS OF HARMONICS CURRENT MEASUREMENT 32
4.4.2 TEST INSTRUMENTS 32
4.4.3 TEST PROCEDURE 33
4.4.4 TEST SETUP 33
4.4.5 EUT OPERATING CONDITIONS 34
4.4.6 TEST RESULTS 35
4.5 VOLTAGE FLUCTUATION AND FLICKER MEASUREMENT 36
4.5.1 LIMITS OF VOLTAGE FLUCTUATION AND FLICKER MEASUREMENT 36

4.5.2 TEST INSTRUMENTS 36
4.5.3 TEST PROCEDURE 36
4.5.4 TEST SETUP 37
4.5.5 EUT OPERATING CONDITIONS 37
4.5.6 TEST RESULTS 38
5 IMMUNITY TEST 39
5.1 GENERAL DESCRIPTION 39
5.2 GENERAL PERFORMANCE CRITERIA DESCRIPTION 40
5.3 PARTICULAR PERFORMANCE CRITERIA DESCRIPTION 41
5.3.1 PARTICULAR PERFORMANCE CRITERIA DESCRIPTION FOR LAN FUNCTION OF EUT 41
5.4 EUT OPERATING CONDITION 41
5.5 ELECTROSTATIC DISCHARGE IMMUNITY TEST (ESD) 42
5.5.1 TEST SPECIFICATION 42
5.5.2 TEST INSTRUMENTS 42
5.5.3 TEST PROCEDURE 42
5.5.4 TEST SETUP 44
5.5.5 TEST RESULTS 45
5.6 RADIATED, RADIO-FREQUENCY, ELECTROMAGNETIC FIELD IMMUNITY TEST (RS) 46
5.6.1 TEST SPECIFICATION 46
5.6.2 TEST INSTRUMENTS 46
5.6.3 TEST PROCEDURE 47
5.6.4 TEST SETUP 47
5.6.5 TEST RESULTS 48
5.7 ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST (EFT) 49
5.7.1 TEST SPECIFICATION 49
5.7.2 TEST INSTRUMENTS 49
5.7.3 TEST PROCEDURE 49
5.7.4 TEST SETUP 50
5.7.5 TEST RESULTS 51
5.8 SURGE IMMUNITY TEST 52
5.8.1 TEST SPECIFICATION 52
5.8.2 TEST INSTRUMENTS 52
5.8.3 TEST PROCEDURE 53
5.8.4 TEST SETUP 53
5.8.5 TEST RESULTS 54
5.9 IMMUNITY TO CONDUCTED DISTURBANCES INDUCED BY RF FIELDS (CS) 55
5.9.1 TEST SPECIFICATION 55
5.9.2 TEST INSTRUMENTS 55
5.9.3 TEST PROCEDURE 56
5.9.4 TEST SETUP 56
5.9.5 TEST RESULTS 57
5.10 POWER FREQUENCY MAGNETIC FIELD IMMUNITY TEST 58
5.10.1 TEST SPECIFICATION 58
5.10.2 TEST INSTRUMENTS 58

5.10.3 TEST PROCEDURE 58
5.10.4 TEST SETUP 59
5.10.5 TEST RESULTS 60
5.11 VOLTAGE DIP/SHORT INTERRUPTIONS/VOLTAGE VARIATIONS (DIP) IMMUNITY TEST 61
5.11.1 TEST SPECIFICATION 61
5.11.2 TEST INSTRUMENTS 61
5.11.3 TEST PROCEDURE 61
5.11.4 TEST SETUP 62
5.11.5 TEST RESULTS 63
6 PHOTOGRAPHS OF THE TEST CONFIGURATION 64
7 APPENDIX - INFORMATION ON THE TESTING LABORATORIES 75

1 CERTIFICATION

PRODUCT:	Fast Ethernet Switch	
BRAND NAME:	Edge-Core	
MODEL NO:	ES3528M-PoE	
TESTED:	Oct. 05 to 17, 2006	
TEST ITEM:	R&D SAMPLE	
APPLICANT:	Accton Technology Corporation	
STANDARDS:	EN 55022:1998+A1:2000 +A2:2003, Class A	EN 55024:1998+A1:2001 +A2:2003
	EN 61000-3-2: 2000, Class A	IEC 61000-4-2:2001
	EN 61000-3-3: 1995+A1: 2001	IEC 61000-4-3:2002+A1:2002
		IEC 61000-4-4:2004
		IEC 61000-4-5:2001
		IEC 61000-4-6:2003+A1:2004
		IEC 61000-4-8:2001
		IEC 61000-4-11:2004

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : Jessica Cheng , **DATE:** Dec. 23, 2009
(Jessica Cheng / Specialist)

TECHNICAL ACCEPTANCE : Joyce Chen , **DATE:** Dec. 23, 2009
(Joyce Chen / Senior Engineer)

APPROVED BY : Kenny Meng , **DATE:** Dec. 23, 2009
(Kenny Meng / Assistant Manager)

2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

EMISSION			
Standard	**Test Type**	**Result**	**Remarks**
EN 55022:1998 +A1:2000+A2:2003, Class A	Conducted Test	**PASS**	Meets Class A Limit Minimum passing margin is -19.26 dB at 0.615 MHz
	Telecommunication Ports Conducted Test	**PASS**	Meets Class A Limit Minimum passing margin is -3.63 dB at 0.312 MHz
	Radiated Test	**PASS**	Meets Class A Limit Minimum passing margin is -9.3 dB at 143.40 MHz
EN 61000-3-2:2000, Class A	Harmonic current emissions	**PASS**	Meets Class A Limit
EN 61000-3-3:1995 + A1:2001	Voltage fluctuations & flicker	**PASS**	Meets the requirements.

IMMUNITY (EN 55024:1998+A1:2001+A2:2003)			
Standard	**Test Type**	**Result**	**Remarks**
IEC 61000-4-2: 2001	Electrostatic discharge immunity test	**PASS**	Meets the requirements of Performance Criterion A
IEC 61000-4-3: 2002 +A1:2002	Radiated, radio-frequency, electromagnetic field immunity test	**PASS**	Meets the requirements of Performance Criterion A
IEC 61000-4-4: 2004	Electrical fast transient / burst immunity test.	**PASS**	Meets the requirements of Performance Criterion A
IEC 61000-4-5: 2001	**Surge immunity test**	**PASS**	Meets the requirements of Performance Criterion A
IEC 61000-4-6: 2003 +A1:2004	Immunity to conducted disturbances, induced by radio-frequency fields	**PASS**	Meets the requirements of Performance Criterion A
IEC 61000-4-8: 2001	Power frequency magnetic field immunity test.	**PASS**	Meets the requirements of Performance Criterion A
IEC 61000-4-11:2004	Voltage dips, short interruptions and voltage variations immunity tests	**PASS**	Meets the requirements of Voltage Dips: 1. >95% reduction - Performance Criterion A 2. 30% reduction - Performance Criterion A Voltage Interruptions: 1. >95% reduction - Performance Criterion B

2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

MEASUREMENT	UNCERTAINTY
Conducted emissions	2.53 dB
Radiated emissions	3.30 dB

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Fast Ethernet Switch
MODEL NO.	ES3528M-PoE
POWER SUPPLY	Internal power supply, Class I
POWER CORD	NA
DATA CABLE SUPPLIED	DB9 cable (Unshielded, 1.6m)
I/O PORT	RJ45 Port x 24 (10/100Mbps with POE function) RJ45 Port x 4 (10/100/1000Mbps with POE function) Giga Combo (RJ45/miniGBIC) Ports x 2 Console Port x 1

NOTE:

1. This report is base on ADT report with Reference No.: CE951004H04A. The original report was issued by Advance Data Technology Corp. (ADT Corp.) on Feb. 01, 2007. ADT Corp. is one of Bureau Veritas family and she has fully transferred all its test facilities, staffs & service system to Bureau Veritas Consumer Products Services (Hong Kong) Limited, Taoyuan Branch in 2008.

2. The EUT was pre-tested under following test mode, and the test data was recorded in this report:

Conducted and Radiated emission	
Pre-test Mode	Description
Mode A	Port 1 10 Mbps + Port 28 10 Mbps
Mode B	Port 1 100 Mbps + Port 28 100 Mbps
Mode C	**Port 1 100 Mbps + Port 28 1000 Mbps**
Telecommunication ports conducted test	
Pre-test Mode	Description
Mode D	**10 Mbps**
Mode E	100 Mbps

The worst conducted and radiated emission was found in **Mode C**. The worst Telecommunication ports conducted test was found in **Mode D**. The final test was executed under test mode with highest emission and recorded in this report individually.

3. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

3.2 GENERAL DESCRIPTION OF TEST MODE

The EUT was tested under following test modes :

For Conducted and Radiated test	
Test Mode	**Description**
Mode 1	Port 1 100 Mbps + Port 28 1000 Mbps
For Telecommunication ports conducted test	
Test Mode	**Description**
Mode 1	10 Mbps
Mode 2	1000 Mbps (Current)
Mode 3	1000 Mbps (Voltage)
Harmonics Current / Voltage Fluctuation and Flicker / Immunity test	
Test Mode	**Description**
Mode 1	Port 1 100 Mbps + Port 28 1000 Mbps

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a kind of IT equipment and, according to the specifications of the manufacturers, must comply with the requirements of the following standards:

EN 55022:1998+A1:2000+A2:2003, Class A	EN 55024:1998+A1:2001+A2:2003
EN 61000-3-2: 2000, Class A	IEC 61000-4-2:2001
EN 61000-3-3: 1995+A1: 2001	IEC 61000-4-3:2002+A1:2002
	IEC 61000-4-4:2004
	IEC 61000-4-5:2001
	IEC 61000-4-6:2003+A1:2004
	IEC 61000-4-8:2001
	IEC 61000-4-11:2004

All tests have been performed and recorded as per the above standards.

3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

FOR CONDUCTED & RADIATED TEST ITEMS:

No.	Product	Brand	Model No.	Serial No.	FCC ID
1	Nustreams	Xtramus	NuStreams-600	05NS06C00004	DoC
2	PERSONAL COMPUTER	DELL	DCSM	294QL1S	DoC
3	MONITOR	ADI	CM100	026058T10200636 A	DoC
4	KEYBOARD	BTC	KB-5200T	F24800403	E5XKB5122WTH0110
5	MOUSE	BTC	M851	G00347024434	DoC
6	Mid Span PoE Test	hp	5092-0764	NA	DoC
7	Gigabit Switch	SMC	SMC6128PL2	NA	NA

No.	Signal cable description
1	NA
2	NA
3	1.8 m braid shielded wire, terminated with VGA connector via metallic frame, w/o core
4	1.7 m foil shielded wire, terminated with PS/2 connector via metallic frame, w/o core
5	1.5 m foil shielded wire, terminated with PS/2 connector via metallic frame, w/o core
6	NA
7	NA

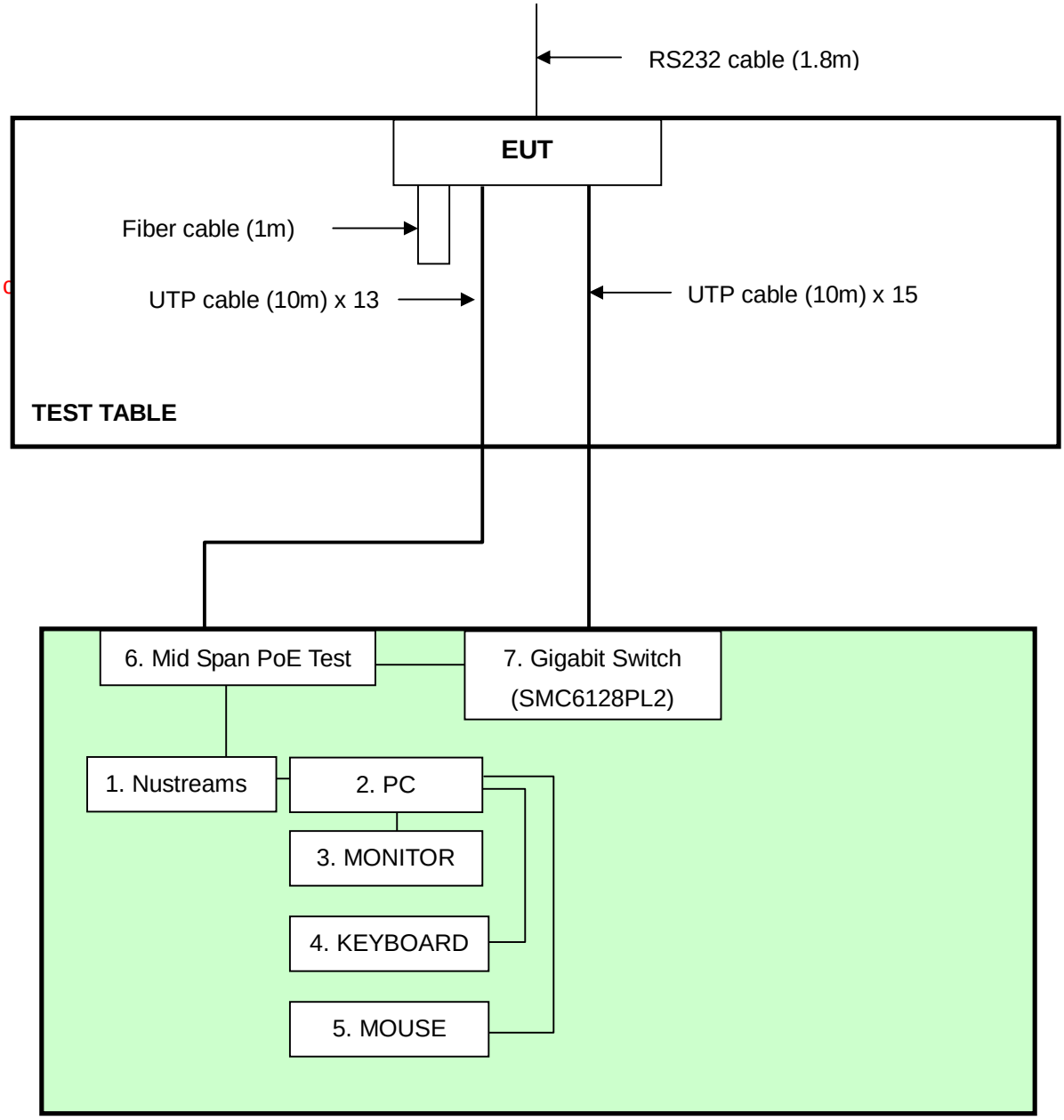
FOR HARMONICS CURRENT / VOLTAGE FLUCTUATION AND FLICKER / IMMUNITY TEST:

No.	Product	Brand	Model No.	Serial No.	FCC ID
1	NOTEBBOK COMPUTER	DELL	PPT	17044664176	E2K24GBRL
2	Mid Span PoE Test	hp	5092-0764	NA	NA
3	NOTEBBOK COMPUTER	HP	HSTNN-S19C	GFC2Q-3C9FD-QXCY T-YTB2D-BJH43	NA
4	Mid Span PoE Test	hp	5029-0764	NA	NA

No.	Signal cable description
1	NA
2	NA
3	NA
4	NA

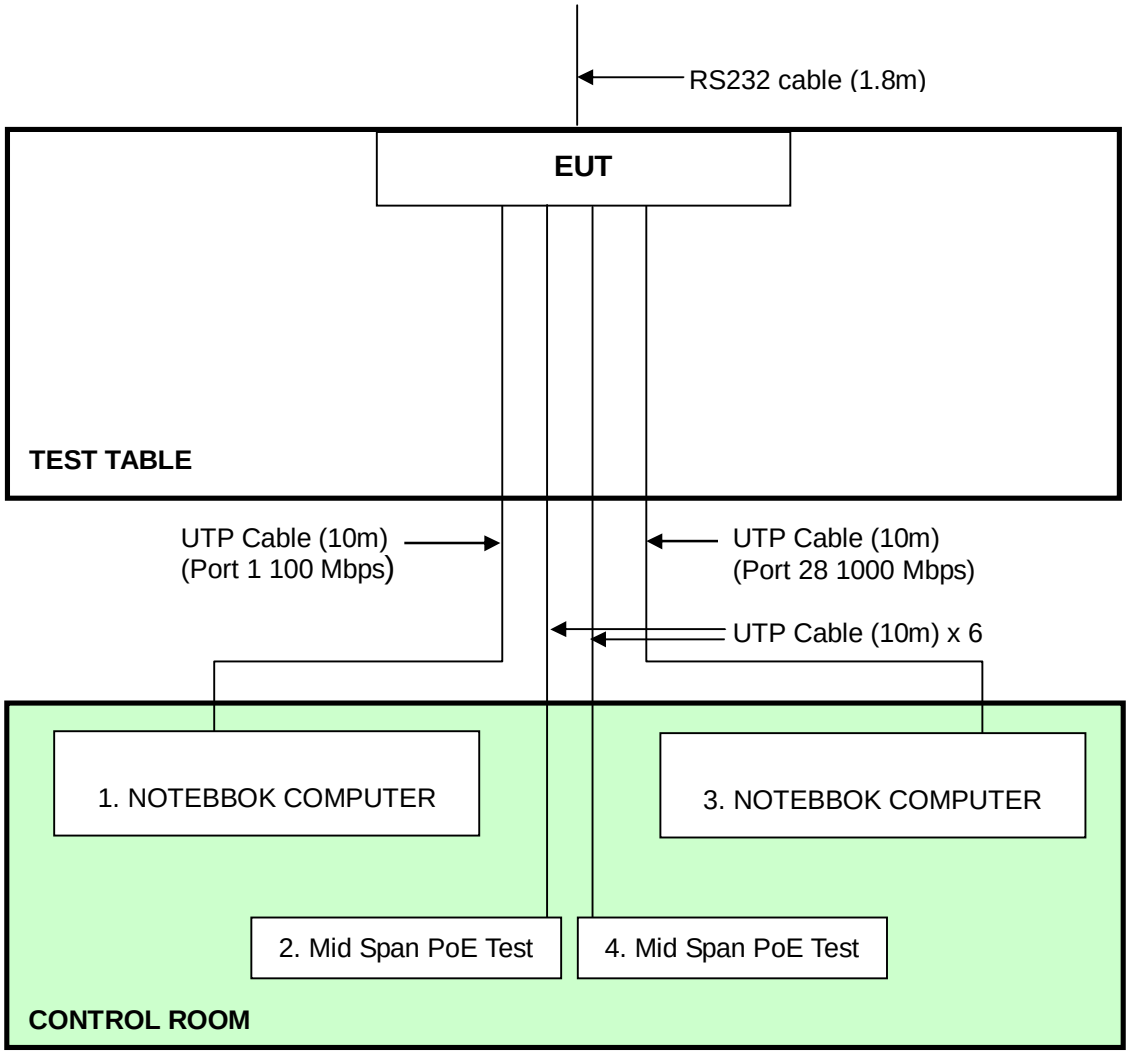
Note: 1. All power cords of the above support units are unshielded (1.8m).

FOR CONDUCTED & RADIATED TEST ITEMS:



NOTE: 1. Support units 1-7 were kept in the control room during the test.
2. The test configuration of radiated emission used overhead rack. Please refer to the photos of test configuration in Item 6 also.

FOR HARMONICS CURRENT / VOLTAGE FLUCTUATION AND FLICKER / IMMUNITY TEST:



NOTE: 1. Support units 1-4 were kept in the control room during the test.
2. Please refer to the photos of test configuration in Item 6 also.

4 EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

TEST STANDARD: EN 55022

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

NOTE: (1) The lower limit shall apply at the transition frequencies.

(2) The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

(3) All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS 30	100287	Feb. 10, 2007
Line-Impedance Stabilization Network(for EUT)	ESH3-Z5	848773/004	Oct. 24, 2006
Line-Impedance Stabilization Network(for Peripheral)	ENV-216	100072	Oct. 24, 2006
RF Cable (JETBAO)	RG233/U	Cable_CA_01	Jul. 19, 2007
Terminator	50	1	Oct. 08, 2007
Software	ADT_Cond_V7.3.2	NA	NA

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in ADT Shielded Room No. A.
3. The VCCI Con A Registration No. is C-817.

4.1.3 TEST PROCEDURE

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

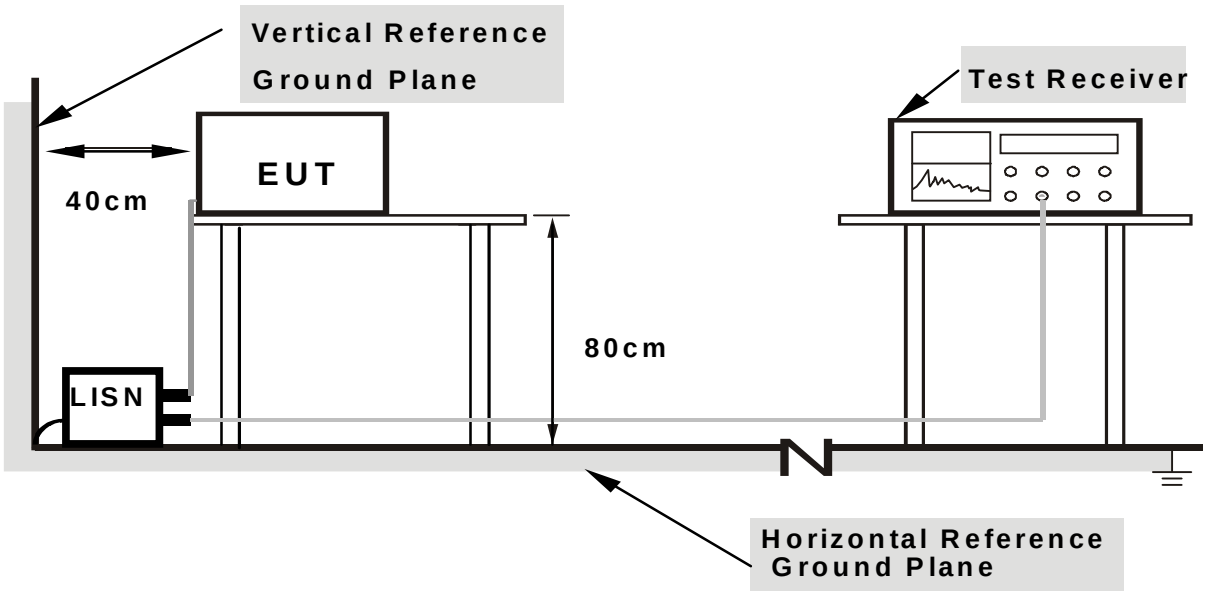
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

c. The frequency range from 150 kHz to 30 MHz was searched. Emission levels over 10dB under the prescribed limits could not be reported.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.1.6 EUT OPERATING CONDITIONS

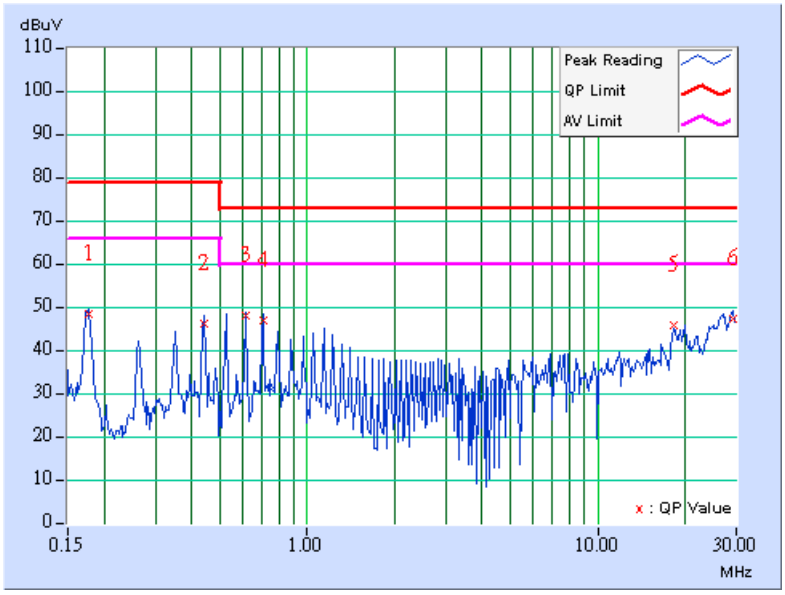
1. Turn on the power of all equipment.
2. Support unit 2(PC) run “Nustreams” test program to enable all functions of EUT via Support unit 1(Nustreams) and support unit 6.
3. Support unit 7 (Giga switch) transmitted messages to and received messages via EUT.
4. Repeat steps 2-3.

4.1.7 TEST RESULTS

TEST MODE	Mode 1	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	230Vac, 50 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60 % RH, 968 hPa	TESTED BY	Max Tseng

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.177	0.42	47.58	45.26	48.00	45.68	79.00	66.00	-31.00	-20.32
2	0.439	0.30	45.27	37.31	45.57	37.61	79.00	66.00	-33.43	-28.39
3	**0.615**	**0.30**	**47.28**	**40.44**	**47.58**	**40.74**	**73.00**	**60.00**	**-25.42**	**-19.26**
4	0.705	0.30	46.04	40.36	46.34	40.66	73.00	60.00	-26.66	-19.34
5	18.181	0.86	44.81	37.84	45.67	38.70	73.00	60.00	-27.33	-21.30
6	29.063	1.00	46.35	37.09	47.35	38.09	73.00	60.00	-25.65	-21.91

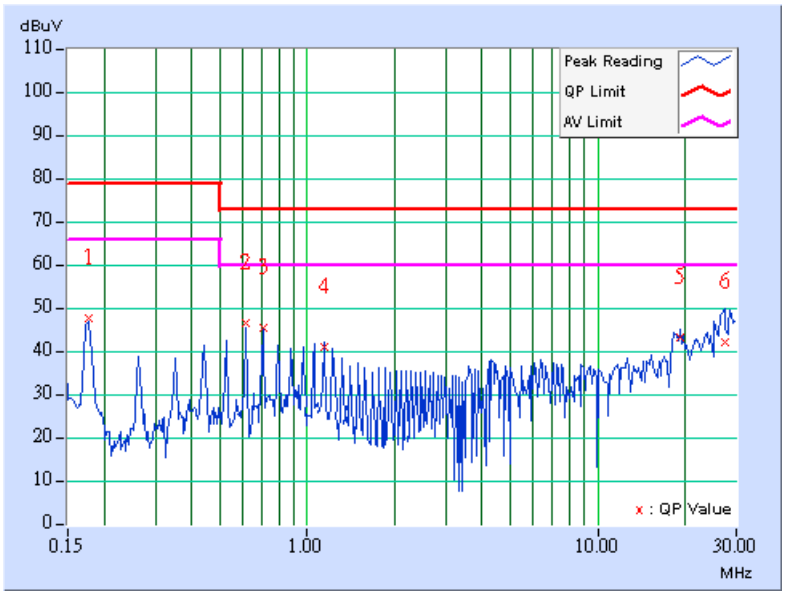
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



TEST MODE	Mode 1	**6dB BANDWIDTH**	9 kHz
INPUT POWER (SYSTEM)	230Vac, 50 Hz	**PHASE**	Neutral (N)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60 % RH, 968 hPa	**TESTED BY**	Max Tseng

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.177	0.42	46.91	44.26	47.33	44.68	79.00	66.00	-31.67	-21.32
2	0.615	0.34	45.71	38.88	46.05	39.22	73.00	60.00	-26.95	-20.78
3	0.705	0.35	44.57	38.71	44.92	39.06	73.00	60.00	-28.08	-20.94
4	1.142	0.40	40.23	33.62	40.63	34.02	73.00	60.00	-32.37	-25.98
5	19.167	0.88	42.28	34.09	43.16	34.97	73.00	60.00	-29.84	-25.03
6	27.332	1.00	41.39	27.65	42.39	28.65	73.00	60.00	-30.61	-31.35

REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



4.2 CONDUCTED EMISSION MEASUREMENT AT TELECOMMUNICATION PORTS

4.2.1 LIMIT OF CONDUCTED COMMON MODE DISTURBANCE AT TELECOMMUNICATION PORTS

TEST STANDARD: EN 55022

FOR CLASS A EQUIPMENT

FREQUENCY (MHz)	Voltage Limit (dBuV)		Current Limit (dBuA)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	97 – 87	84 - 74	53 – 43	40 – 30
0.5 - 30.0	87	74	43	30

FOR CLASS B EQUIPMENT

FREQUENCY (MHz)	Voltage Limit (dBuV)		Current Limit (dBuA)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	84 - 74	74 - 64	40 – 30	30 – 20
0.5 - 30.0	74	64	30	20

NOTE: (1) The limits decrease linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS 30	100287	Feb. 10, 2007
Line-Impedance Stabilization Network(for EUT)	ESH3-Z5	848773/004	Oct. 24, 2006
Line-Impedance Stabilization Network(for Peripheral)	ENV-216	100072	Oct. 24, 2006
ROHDE & SCHWARZ ISN	ENY 41	838119/024	Feb. 24, 2007
ROHDE & SCHWARZ ISN	ENY 22	837497/019	Feb. 24, 2007
RF Cable (JETBAO)	RG233/U	Cable_CA_01	Jul. 18, 2007
CURRENT PROBE	SMZ 11	18001	Jul. 25, 2007
RF Current Probe	F-35	455	Jul. 04, 2007
Capacitive Voltage Probe	CVP 2200	18312	Jul. 25, 2007
RF- ABSORBING CLAMP	KEMA 801	16617	NA

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in ADT Shielded Room No. A.
3. The VCCI Con A Registration No. is C-817.

4.2.3 TEST PROCEDURE

For ISN:

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room and connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN.

b. Voltage at the measurement port of the ISN was detected, the reading was corrected by adding the voltage division factor of the ISN, and was compared to the voltage limits.

c. The disturbance levels and the frequencies of at least six highest disturbances were recorded from each telecommunication port, which comprises the EUT.

For Current Probe:

a. Current probe shall be placed at 0.1m from the ISN.

b. Current at the measurement port of the ISN was detected, the reading was corrected by adding the current division factor of the current probe, and was compared to the current limits.

c. The disturbance levels and the frequencies of at least six highest disturbances were recorded from each telecommunication port, which comprises the EUT.

For Voltage Probe:

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room and connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN.

b. Voltage at the measurement port of the voltage probe was detected, the reading was corrected by adding the voltage division factor of the voltage probe, and was compared to the voltage limits.

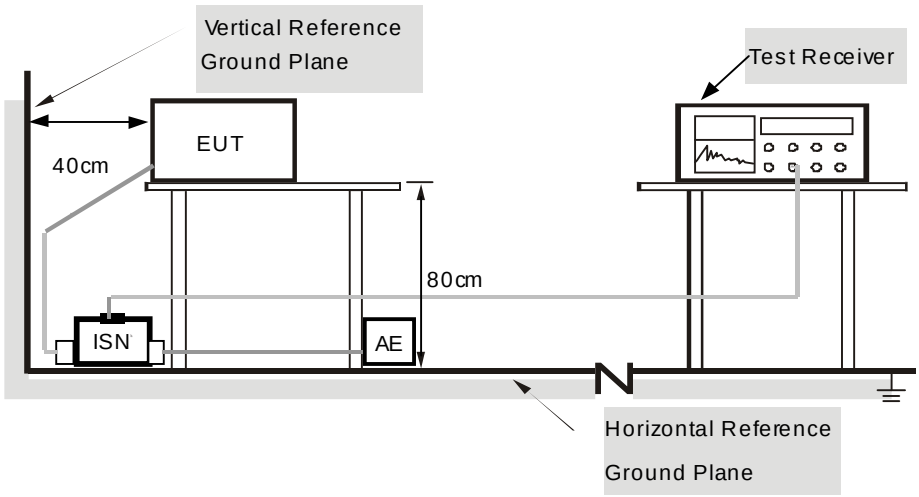
c. The disturbance levels and the frequencies of at least six highest disturbances were recorded from each telecommunication port, which comprises the EUT.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP

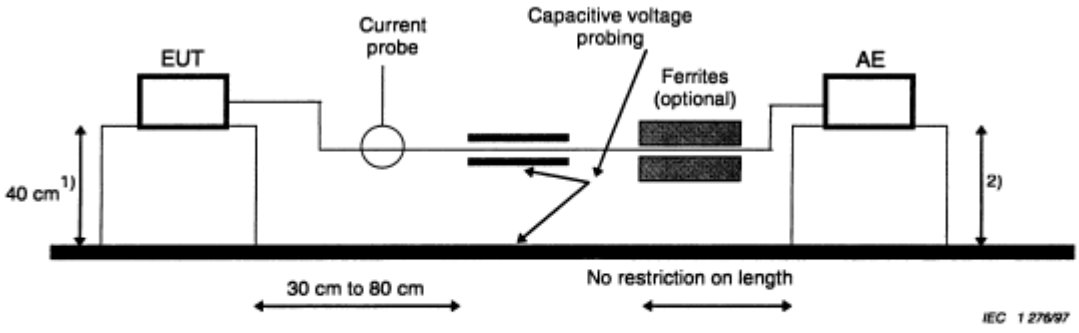
For ISN Probe:



Note: 1. Support units were connected to second LISN.

2. Both of LISNs (AMN) and ISN are 80 cm from EUT and at least 80 cm from other units and other metal planes support units.

For Voltage & Current Probe:



AE = Associated equipment

EUT = Equipment under test

1) Distance to the reference groundplane (vertical or horizontal).

2) Distance to the reference groundplane is not critical.

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

NOTE:

1. The methods of conformance testing were selected according to the Alternative 1 (EN 55022: 1998, section: 9.5.1.1) or Alternative 2 (EN 55022: 1998, section: 9.5.1.2) of measurement method using an ISN with a longitudinal conversion loss (LCL) as defined in rule.
2. When measurements were performed on a single unscreened balanced pair, an adequate ISN for two wires were used; when performed on unscreened cables containing two balanced pairs, an adequate ISN for four wires were used.
3. The communication function of EUT was executed and ISN was connected between EUT and associated equipment and the ISN was connected directly to reference ground plane.

4.2.6 EUT OPERATING CONDITIONS

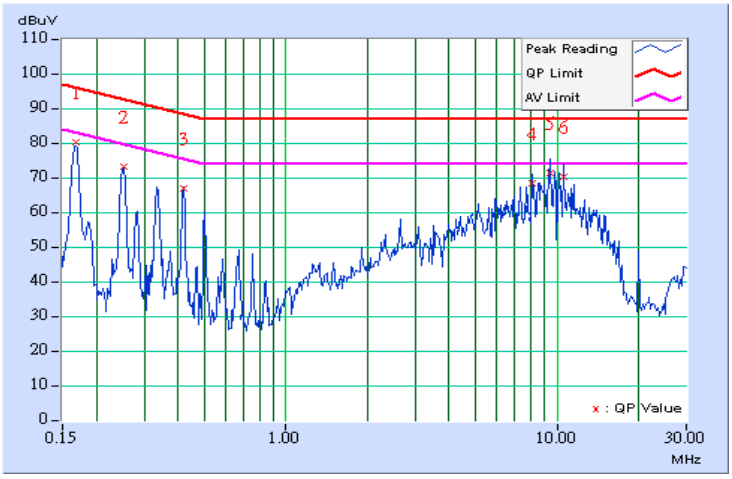
Same as item 4.1.6.

4.2.7 TEST RESULTS (MODE 1)

TEST MODE	Mode 1	**INPUT POWER**	230Vac, 50 Hz
TELECOM PORT	RJ45 Telecom Port (10Mbps)	**6dB BANDWIDTH**	9 kHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 60% RH, 968 hPa	**TESTED BY**	Max Tseng

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	A.V.	Q.P.	A.V.
1	0.168	10.38	69.92	68.88	80.30	79.26	96.05	83.05	-15.75	-3.79
2	0.252	10.36	62.88	62.77	73.24	73.13	92.71	79.71	-19.47	-6.58
3	0.420	10.32	56.67	56.57	66.99	66.89	88.46	75.46	-21.47	-8.57
4	8.090	10.28	58.34	47.86	68.62	58.14	87.00	74.00	-18.38	-15.86
5	9.414	10.31	61.07	50.70	71.38	61.01	87.00	74.00	-15.62	-12.99
6	10.582	10.32	60.13	49.53	70.45	59.85	87.00	74.00	-16.55	-14.15

REMARKS:
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.

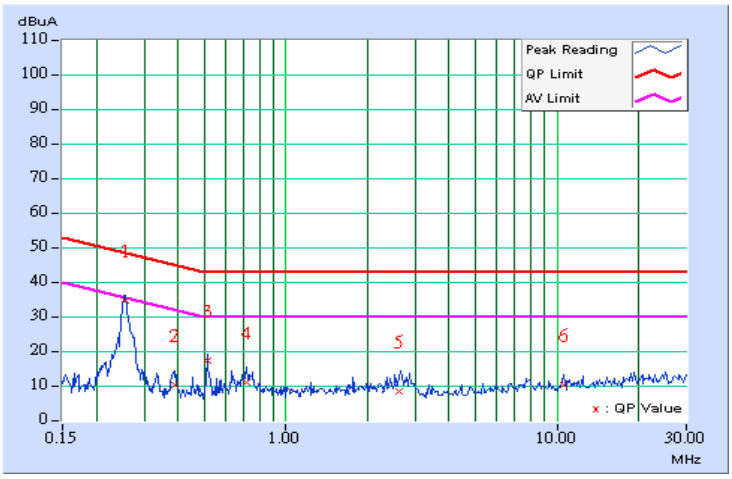


4.2.8 TEST RESULTS (MODE 2)

TEST MODE	Mode 2	**INPUT POWER**	230Vac, 50 Hz
TELECOM PORT	1000Mbps (Current)	**6dB BANDWIDTH**	9 kHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 60% RH, 968 hPa	**TESTED BY**	Max Tseng

No	Freq.	Corr. Factor	Reading Value [dB (uA)]		Emission Level [dB (uA)]		Limit [dB (uA)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	A.V.	Q.P.	A.V.
1	0.254	-0.41	34.34	30.31	33.93	29.90	48.62	35.62	-14.69	-5.72
2	0.388	-0.08	10.05	6.44	9.97	6.36	45.10	32.10	-35.13	-25.74
3	0.513	-0.02	17.19	14.65	17.17	14.63	43.00	30.00	-25.83	-15.37
4	0.720	0.04	10.80	4.97	10.84	5.01	43.00	30.00	-32.16	-24.99
5	2.626	0.26	8.13	6.55	8.39	6.81	43.00	30.00	-34.61	-23.19
6	10.629	0.40	10.13	9.53	10.53	9.93	43.00	30.00	-32.47	-20.07

REMARKS:
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.

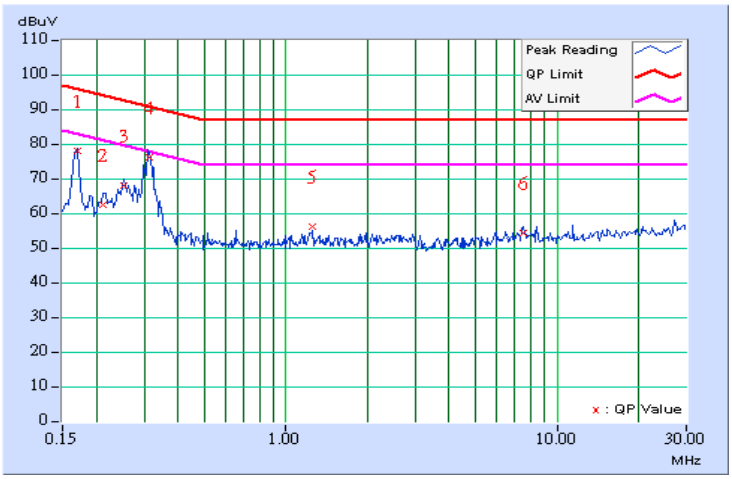


4.2.9 TEST RESULTS (MODE 3)

TEST MODE	Mode 3	**INPUT POWER**	230Vac, 50 Hz
TELECOM PORT	1000Mbps (Voltage)	**6dB BANDWIDTH**	9 kHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 60% RH, 968 hPa	**TESTED BY**	Max Tseng

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	A.V.	Q.P.	A.V.
1	0.170	42.94	34.86	34.49	77.80	77.43	95.98	82.98	-18.18	-5.55
2	0.213	42.94	19.37	15.71	62.31	58.65	94.11	81.11	-31.80	-22.46
3	0.252	42.94	24.98	21.49	67.92	64.43	92.71	79.71	-24.79	-15.28
4	**0.312**	**42.93**	**33.21**	**31.35**	**76.14**	**74.28**	**90.91**	**77.91**	**-14.77**	**-3.63**
5	1.252	42.93	13.20	11.51	56.13	54.44	87.00	74.00	-30.87	-19.56
6	7.473	43.12	11.18	10.95	54.30	54.07	87.00	74.00	-32.70	-19.93

REMARKS:
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



4.3 RADIATED EMISSION MEASUREMENT

4.3.1 LIMITS OF RADIATED EMISSION MEASUREMENT

TEST STANDARD: EN 55022

FREQUENCY (MHz)	Class A (at 10m) dBuV/m	Class B (at 10m) dBuV/m
30 - 230	40	30
230 - 1000	47	37

NOTE: (1) The lower limit shall apply at the transition frequencies.
(2) Emission level (dBuV/m) = 20 log Emission level (uV/m).
(3) All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.3.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
*ADVANTEST Spectrum Analyzer	R3271A	85060311	July 03, 2007
*HP Pre_Amplifier	8449B	3008A01922	Oct. 02, 2007
*ROHDE & SCHWARZ Test Receiver	ESCS 30	100027	Jul. 26, 2007
*CHASE Broadband Antenna	CBL6112B	2798	Dec. 11, 2006
*Schwarzbeck Horn_Antenna	BBHA9120	D123	Sep. 23, 2007
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 05, 2007
SCHWARZBECK Biconical Antenna	VHBA9123	459	Jun. 08, 2009
SCHWARZBECK Periodic Antenna	UPA6108	1148	Jun. 08, 2009
*RF Switches	MP59B	M50867	July 03, 2007
*RF Cable(JETBAO)	9913-30M N-N Cable	STACAB-30M-1GHz	July 17, 2007
*Software	ADT_Radiated_V5.14	NA	NA
*EMCO Antenna Tower	2075-2	9712-2124	NA
*EMCO Turn Table	2081-1.53	9712-2030	NA
*CORCOM AC Filter	MRI2030	107/108	NA
*Ferrite Clamp	FC18	910094	Dec. 01, 2006
*Ferrite Clamp	FC18	910095	Dec. 01, 2006
*Ferrite Clamp	FC18	910096	Dec. 01, 2006

Note: 1. The calibration interval of the above test instruments is 12 months (36 months for Periodic Antenna) and the calibrations are traceable to NML/ROC and NIST/USA.
2. * = These equipment are used for the final measurement.
3. The horn antenna, HP preamplifier (model: 8449B) and Spectrum Analyzer (model: R3271A) are used only for the measurement of emission frequency above 1GHz if tested.
4. The test was performed in ADT Open Site No. A.
5. The VCCI Site Registration No. is R-782.
6. The FCC Site Registration No. is 91097.
7. The CANADA Site Registration No. is IC 4824-1.

4.3.3 TEST PROCEDURE

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10-meter open field site. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarization of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the turn table was turned from 0 degrees to 360 degrees to find the maximum reading.

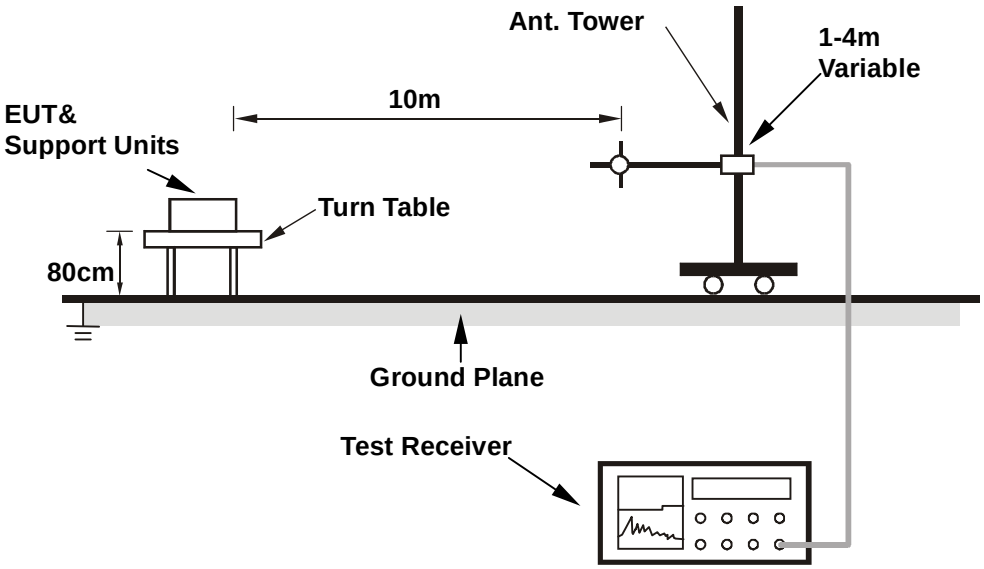
e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using the quasi- peak method or average method as specified and then reported In Data sheet peak mode and QP mode.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.3.6 EUT OPERATING CONDITIONS

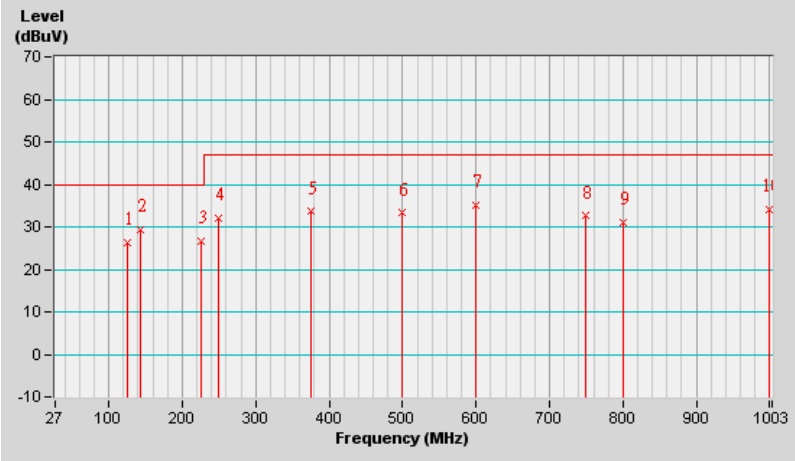
Same as 4.1.6

4.3.7 TEST RESULTS

TEST MODE	Mode 1	FREQUENCY RANGE	30-1000 MHz
INPUT POWER (SYSTEM)	230Vac, 50 Hz	DETECTOR FUNCTION & BANDWIDTH	Quasi-Peak, 120kHz
ENVIRONMENTAL CONDITIONS	21 deg. C, 70% RH, 968 hPa	TESTED BY : Timmy Hu	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 10 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	124.92	26.30 QP	40.00	-13.70	3.99 H	186	14.00	12.30
2	142.27	29.40 QP	40.00	-10.60	3.99 H	205	17.10	12.40
3	224.95	26.70 QP	40.00	-13.30	3.99 H	185	14.30	12.50
4	250.15	32.20 QP	47.00	-14.80	3.99 H	93	18.40	13.80
5	375.00	33.60 QP	47.00	-13.40	2.91 H	262	15.80	17.80
6	500.00	33.30 QP	47.00	-13.70	2.01 H	236	12.90	20.40
7	600.01	35.00 QP	47.00	-12.00	1.58 H	108	12.90	22.10
8	750.01	32.60 QP	47.00	-14.40	1.34 H	19	8.20	24.30
9	800.01	31.00 QP	47.00	-16.00	1.00 H	301	6.40	24.60
10	1000.01	34.20 QP	47.00	-12.80	1.00 H	207	7.80	26.50

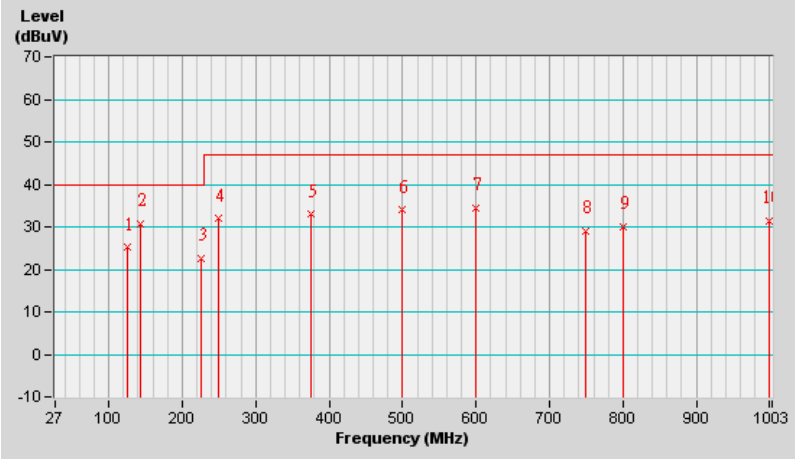
REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.



TEST MODE	Mode 1	**FREQUENCY RANGE**	30-1000 MHz
INPUT POWER (SYSTEM)	230Vac, 50 Hz	**DETECTOR FUNCTION & BANDWIDTH**	Quasi-Peak, 120kHz
ENVIRONMENTAL CONDITIONS	21 deg. C, 70% RH, 968 hPa	**TESTED BY :** Timmy Hu	

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 10 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	125.68	25.10 QP	40.00	-14.90	1.00 V	320	12.80	12.30
2	**143.40**	**30.70 QP**	**40.00**	**-9.30**	**1.00 V**	**263**	**18.50**	**12.30**
3	225.00	22.60 QP	40.00	-17.40	1.00 V	19	10.10	12.50
4	250.00	31.90 QP	47.00	-15.10	1.00 V	349	18.20	13.80
5	375.00	32.90 QP	47.00	-14.10	1.00 V	56	15.10	17.80
6	500.00	33.90 QP	47.00	-13.10	1.00 V	140	13.60	20.40
7	600.01	34.60 QP	47.00	-12.40	2.66 V	349	12.50	22.10
8	750.01	29.10 QP	47.00	-17.90	2.29 V	217	4.80	24.30
9	800.01	30.10 QP	47.00	-16.90	2.04 V	299	5.50	24.60
10	1000.01	31.40 QP	47.00	-15.60	1.93 V	101	5.00	26.50

REMARKS: 1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.



4.4 HARMONICS CURRENT MEASUREMENT

4.4.1 LIMITS OF HARMONICS CURRENT MEASUREMENT

TEST STANDARD: EN 61000-3-2

Limits for Class A equipment	
Harmonics Order n	Max. permissible harmonics current A
Odd harmonics	
3	2.30
5	1.14
7	0.77
9	0.40
11	0.33
13	0.21
15<=n<=39	0.15x15/n
Even harmonics	
2	1.08
4	0.43
6	0.30
8<=n<=40	0.23x8/n

Limits for Class D equipment		
Harmonics Order n	Max. permissible harmonics current per watt mA/W	Max. permissible harmonics current A
Odd Harmonics only		
3	3.4	2.30
5	1.9	1.14
7	1.0	0.77
9	0.5	0.40
11	0.35	0.33
13	0.30	0.21
15<=n<=39	3.85/n	0.15x15/n

NOTE: 1. The classifications of equipment are defined in Section 5 of EN 61000-3-2:2000.

2. The above limits for all equipment except for lighting equipment are for all applications having an active input power > 75 W. No limits apply for equipment with an active input power up to and including 75 W.

4.4.2 TEST INSTRUMENTS

Description & Manufacturer	**Model No.**	**Serial No.**	**Calibrated Until**
EMC PARTNER EMC Emission Tester	HAR1000	086	Mar. 16, 2007
EMC Partner(Software)	HARCS_V3.15	NA	NA

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in EMS room.

4.4.3 TEST PROCEDURE

a. The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the maximum harmonic components under normal operating conditions for each successive harmonic component in turn.

b. The classification of EUT is according to section 5 of EN 61000-3-2: 2000.

The EUT is classified as follows:

Class A: Balanced three-phase equipment, Household appliances excluding equipment as Class D, Tools excluding portable tools, Dimmers for incandescent lamps, audio equipment, equipment not specified in one of the three other classes.

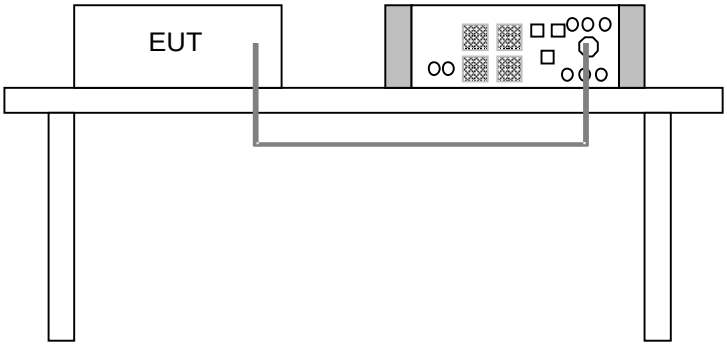
Class B: Portable tools.; Arc welding equipment which is not professional equipment

Class C: Lighting equipment.

Class D: Equipment having a specified power less than or equal to 600 W of the following types: Personal computers and personal computer monitors and television receivers.

c. The correspondent test program of test instrument to measure the current harmonics emanated from EUT is chosen. The measure time shall be not less than the time necessary for the EUT to be exercised.

4.4.4 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.4.5 EUT OPERATING CONDITIONS

1. Turn on the power of all equipment.
2. CLIENT NOTEBOOK COMPUTER and SERVER NOTEBOOK COMPUTER run “Ping.exe” test program to enable all functions of EUT.
3. CLIENT NOTEBOOK COMPUTER transmitted messages to and received messages from the SERVER NOTEBOOK COMPUTER via EUT.
4. Repeat steps 2-3.

4.4.6 TEST RESULTS

FUNDAMENTAL VOLTAGE/AMPERE	230.1 Vrms / 0.893 Arms	**POWER FREQUENCY**	50.000 Hz
POWER CONSUMPTION	198.4 W	**POWER FACTOR**	0.966
ENVIRONMENTAL CONDITIONS	23 deg. C, 50 % RH, 968 hPa	**TESTED BY**	Mitch Jen

STEADY TEST DATA

Harm. Order	Reading Data (A)	Limit (A)	Harm. Order	Reading Data (A)	Limit (A)
1	1.1323	-	2	0.0011	1.0800
3	0.1335	2.3000	4	0.0002	0.4300
5	0.0280	1.1400	6	0.0002	0.3000
7	0.0228	0.7700	8	0.0001	0.2300
9	0.0135	0.4000	10	0.0001	0.1840
11	0.0037	0.3300	12	0.0000	0.1533
13	0.0029	0.2100	14	0.0001	0.1314
15	0.0044	0.1500	16	0.0002	0.1150
17	0.0021	0.1324	18	0.0000	0.1022
19	0.0038	0.1184	20	0.0001	0.0920
21	0.0035	0.1071	22	0.0001	0.0836
23	0.0028	0.0978	24	0.0002	0.0767
25	0.0079	0.0900	26	0.0005	0.0708
27	0.0066	0.0833	28	0.0000	0.0657
29	0.0037	0.0776	30	0.0001	0.0613
31	0.0039	0.0726	32	0.0002	0.0575
33	0.0022	0.0682	34	0.0004	0.0541
35	0.0068	0.0643	36	0.0001	0.0511
37	0.0027	0.0608	38	0.0002	0.0484
39	0.0022	0.0577	40	0.0001	0.0460

NOTE: Steady state values on AC mains are recorded in the table.

4.5 VOLTAGE FLUCTUATION AND FLICKER MEASUREMENT

4.5.1 LIMITS OF VOLTAGE FLUCTUATION AND FLICKER MEASUREMENT

TEST STANDARD: EN 61000-3-3

TEST ITEM	LIMIT	NOTE
P_{st}	1.0	P_{st} means short-term flicker indicator.
P_{lt}	0.65	P_{lt} means long-term flicker indicator.
T_{dt} (ms)	500	T_{dt} means maximum time that dt exceeds 3.3 %.
d_{max} (%)	4%	d_{max} means maximum relative voltage change.
dc (%)	3.3%	dc means relative steady-state voltage change

4.5.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
EMC PARTNER EMC Emission Tester	HAR1000	086	Mar. 16, 2007
EMC Partner(Software)	HARCS_V3.15	NA	NA

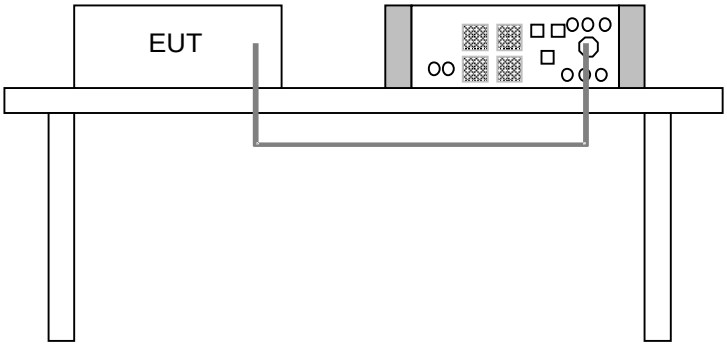
NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in EMS room.

4.5.3 TEST PROCEDURE

a. The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the most unfavorable sequence of voltage changes under normal operating conditions.

b. During the flick measurement, the measure time shall include that part of whole operation cycle in which the EUT produce the most unfavorable sequence of voltage changes. The observation period for short-term flicker indicator is 10 minutes and the observation period for long-term flicker indicator is 2 hours.

4.5.4 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.5.5 EUT OPERATING CONDITIONS

Same as 4.4.5

4.5.6 TEST RESULTS

FUNDAMENTAL VOLTAGE/AMPERE	229.9 Vrms / 0.895 Arms	**POWER FREQUENCY**	50.000 Hz
OBSERVATION PERIOD (TP)	120 minutes	**POWER FACTOR**	0.965
ENVIRONMENTAL CONDITIONS	23 deg. C, 50 % RH, 968 hPa	**TESTED BY**	Mitch Jen

TEST PARAMETER	MEASUREMENT VALUE	LIMIT	REMARKS
P_{st}	0.072	1.0	Pass
P_{lt}	0.072	0.65	Pass
T_{dt} (ms)	0.00	500	Pass
d_{max} (%)	0.00	4%	Pass
dc (%)	0.00	3.3%	Pass

NOTE: (1) P_{st} means short-term flicker indicator.
(2) P_{lt} means long-term flicker indicator.
(3) T_{dt} means maximum time that dt exceeds 3.3 %.
(4) d_{max} means maximum relative voltage change.
(5) dc means relative steady-state voltage change.

5 IMMUNITY TEST

5.1 GENERAL DESCRIPTION

Product Standard:	**EN 55024:1998+A1:2001+A2:2003**	
Basic Standard, Specification, and Performance Criteria:	IEC 61000-4-2	Electrostatic Discharge - ESD: 8kV air discharge, 4kV Contact discharge, Performance Criterion B
	IEC 61000-4-3	Radio-Frequency Electromagnetic Field Susceptibility Test - RS: 80-1000 MHz, 3V/m, 80% AM (1kHz), Performance Criterion A
	IEC 61000-4-4	Electrical Fast Transient/Burst - EFT, Power line: 1kV, Signal line: 0.5kV, Performance Criterion B
	IEC 61000-4-5	Surge Immunity Test: 1.2/50 us Open Circuit Voltage, 8 /20 us Short Circuit Current, Power Line - 1 kV, line to earth - 2kV, Performance Criterion B
	IEC 61000-4-6	Conducted Radio Frequency Disturbances Test - CS: 0.15-80 MHz, 3V, 80% AM, 1kHz, Performance Criterion A
	IEC 61000-4-8	Power Frequency Magnetic Field Test, 50 Hz, 1A/m, Performance Criterion A
	IEC 61000-4-11	Voltage Dips: i) >95% reduction -0.5 period, Performance Criteria B ii) 30% reduction - 25 period, Performance Criterion C Voltage Interruptions: i) >95% reduction - 250 period, Performance Criterion C

5.2 GENERAL PERFORMANCE CRITERIA DESCRIPTION

According to Clause 7.1 of EN 55024 standard, the following describes the general performance criteria.

CRITERION A	The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.
CRITERION B	After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomenon below a performance level specified by the manufacturer, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is allowed. However, no change of operating state if stored data is allowed to persist after the test. If the minimum performance level (or the permissible performance loss) is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.
CRITERION C	Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions. Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

5.3 PARTICULAR PERFORMANCE CRITERIA DESCRIPTION

5.3.1 PARTICULAR PERFORMANCE CRITERIA DESCRIPTION FOR LAN FUNCTION OF EUT

CRITERION A	During and after the test, the EUT shall operate without: - error rate beyond the figure defined by the manufacturer; - requests for retry beyond the figure defined by the manufacturer; - speed of data transmission rate beyond the figure defined by the manufacturer; - protocol failure; - loss of link
CRITERION B	Error rate, request for retry and speed of data transmission rate may be degraded during the application of the test. Degradation of the performance as described in criteria A is permitted provided that the normal operation of the EUT is self-recoverable to the condition immediately before the application of the test. In these cases, operator response is permitted to re-initiate an operation.
CRITERION C	Degradation of the performance as described in criteria A and B is permitted provided that the normal operation of the EUT is self-recoverable to the condition immediately before the application of the test or can be restored after the test by the operator.

5.4 EUT OPERATING CONDITION

Same as item 4.4.5

5.5 ELECTROSTATIC DISCHARGE IMMUNITY TEST (ESD)

5.5.1 TEST SPECIFICATION

Basic Standard:	IEC 61000-4-2
Discharge Impedance:	330 ohm / 150 pF
Discharge Voltage:	Air Discharge – 2, 4, 8 kV (Direct)
	Contact Discharge – 2, 4 kV (Direct/Indirect)
Polarity:	Positive / Negative
Number of Discharge:	Air Discharge: min. 20 times at each test point
	Contact Discharge: min. 50 times at each test point
Discharge Mode:	Single Discharge
Discharge Period:	1-second minimum

5.5.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
NoiseKen, ESD Simulator	ESS-100L(A)	0189C01491	June 20, 2007
Key Tek, ESD Simulator	MZ-15/EC	9906323	April 06, 2007

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in ESD room A.

5.5.3 TEST PROCEDURE

The discharges shall be applied in two ways:

a. Contact discharges to the conductive surfaces and coupling planes:

The EUT shall be exposed to at least 200 discharges, 100 each at negative and positive polarity, at a minimum of four test points. One of the test points shall be subjected to at least 50 indirect discharges to the center of the front edge of the horizontal coupling plane. The remaining three test points shall each receive at least 50 direct contact discharges. If no direct contact test points are available, then at least 200 indirect discharges shall be applied in the indirect mode. Test shall be performed at a maximum repetition rate of one discharge per second.

b. Air discharges at slots and apertures and insulating surfaces:

On those parts of the EUT where it is not possible to perform contact discharge testing, the equipment should be investigated to identify user accessible points where breakdown may occur. Such points are tested using the air discharge method. This investigation should be restricted to those area normally handled by the user. A minimum of 10 single air discharges shall be applied to the selected test point for each such area.

The basic test procedure was in accordance with IEC 61000-4-2:

a. Electrostatic discharges were applied only to those points and surfaces of the EUT that are accessible to users during normal operation.

b. The test was performed with at least ten single discharges on the pre-selected points in the most sensitive polarity.

c. The time interval between two successive single discharges was at least 1 second.

d. The ESD generator was held perpendicularly to the surface to which the discharge was applied and the return cable was at least 0.2 meters from the EUT.

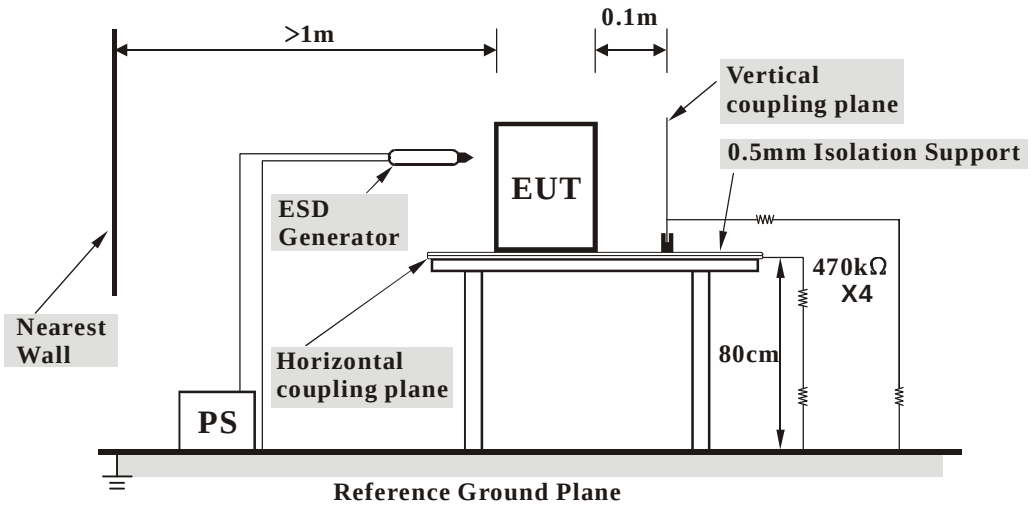
e. Contact discharges were applied to the non-insulating coating, with the pointed tip of the generator penetrating the coating and contacting the conducting substrate.

f. Air discharges were applied with the round discharge tip of the discharge electrode approaching the EUT as fast as possible (without causing mechanical damage) to touch the EUT. After each discharge, the ESD generator was removed from the EUT and re-triggered for a new single discharge. The test was repeated until all discharges were complete.

g. At least ten single discharges (in the most sensitive polarity) were applied to the **H**orizontal **C**oupling **P**lane at points on each side of the EUT. The ESD generator was positioned vertically at a distance of 0.1 meters from the EUT with the discharge electrode touching the **HCP.**

h. At least ten single discharges (in the most sensitive polarity) were applied to the center of one vertical edge of the **V**ertical **C**oupling **P**lane in sufficiently different positions that the four faces of the EUT were completely illuminated. The **VCP** (dimensions 0.5m x 0.5m) was placed vertically to and 0.1 meters from the EUT.

5.5.4 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

NOTE:

TABLE-TOP EQUIPMENT

The configuration consisted of a wooden table 0.8 meters high standing on the **G**round **R**eference **P**lane. The **GRP** consisted of a sheet of aluminum at least 0.25mm thick, and 2.5 meters square connected to the protective grounding system. A **H**orizontal **C**oupling **P**lane (1.6m x 0.8m) was placed on the table and attached to the **GRP** by means of a cable with 940kΩ total impedance. The equipment under test, was installed in a representative system as described in section 7 of IEC 61000-4-2, and its cables were placed on the **HCP** and isolated by an insulating support of 0.5mm thickness. A distance of 1-meter minimum was provided between the EUT and the walls of the laboratory and any other metallic structure.

FLOOR-STANDING EQUIPMENT

The equipment under test was installed in a representative system as described in section 7 of IEC 61000-4-2, and its cables were isolated from the Ground Reference Plane by an insulating support of 0.1-meter thickness. The GRP consisted of a sheet of aluminum that is at least 0.25mm thick, and 2.5 meters square connected to the protective grounding system and extended at least 0.5 meters from the EUT on all sides.

5.5.5 TEST RESULTS

TEST MODE	Mode 1	INPUT POWER	230Vac, 50 Hz
ENVIRONMENTAL CONDITIONS	21 deg. C, 50 % RH, 968 hPa	TESTED BY	Duke Tseng

TEST RESULTS OF DIRECT APPLICATION					
Discharge Level (kV)	Polarity (+/-)	Test Point	Contact Discharge	Air Discharge	Performance Criterion
2,4	+/-	1, 2	Note	NA	A
2,4,8	+/-	3, 4	NA	Note	A

Description of test point: Please refer to following page for representative mark only.

TEST RESULTS OF INDIRECT APPLICATION					
Discharge Level (kV)	Polarity (+/-)	Test Point	Horizontal Coupling Plane	Vertical Coupling Plane	Performance Criterion
2, 4	+/-	1 ~ 4	Note	Note	A

Description of test point:

1. Front side 2. Right side 3. Left side 4. Rear side

NOTES: There was no change compared with the initial operation during the test.

5.6 RADIATED, RADIO-FREQUENCY, ELECTROMAGNETIC FIELD IMMUNITY TEST (RS)

5.6.1 TEST SPECIFICATION

Basic Standard:	IEC 61000-4-3
Frequency Range:	80 MHz - 1000 MHz
Field Strength:	3 V/m
Modulation:	1kHz Sine Wave, 80%, AM Modulation
Frequency Step:	1 % of fundamental
Polarity of Antenna:	Horizontal and Vertical
Test Distance:	3 m
Antenna Height:	1.5m
Dwell Time:	3 seconds

5.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
AR Power Amplifier	150W1000M3	311567	NA
AR Power Amplifier	60S1G3M1	304334	NA
AR LOG ANTENNA	AT5080ANT	309740	NA
BOONTON RF Voltage Meter	4232A-01	93801	Jan. 30, 2007
R&S Signal Generator	SML03	101159	Feb. 09, 2007
Electric Field Probe	FP6001	30817	Sep. 14, 2007
ADT RS Test Workbench(Software)	ADT_RS_V7.5	NA	NA

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Chamber Room No. B.

5.6.3 TEST PROCEDURE

The test procedure was in accordance with IEC 61000-4-3

a. The testing was performed in a fully-anechoic chamber. The transmit antenna was located at a distance of 3 meters from the EUT.

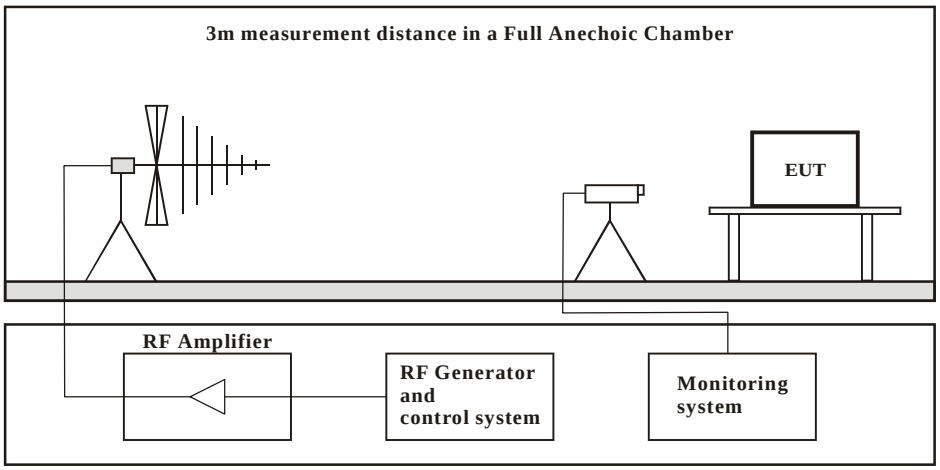
b. The frequency range is swept from 80 MHz to 1000 MHz, with the signal 80% amplitude modulated with a 1kHz sine wave. The rate of sweep did not exceed 1.5 x 10 -3 decade/s. Where the frequency range is swept incrementally, the step size was 1% of fundamental.

c. The dwell time at each frequency shall be not less than the time necessary for the EUT to be able to respond.

d. The field strength level was 3V/m.

e. The test was performed with the EUT exposed to both vertically and horizontally polarized fields on each of the four sides.

5.6.4 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

NOTE:

TABLETOP EQUIPMENT
The EUT installed in a representative system as described in section 7 of IEC 61000-4-3 was placed on a non-conductive table 0.8 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

FLOOR STANDING EQUIPMENT
The EUT installed in a representative system as described in section 7 of IEC 61000-4-3 was placed on a non-conductive wood support 0.1 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

5.6.5 TEST RESULTS

TEST MODE	Mode 1	INPUT POWER	230Vac, 50 Hz
ENVIRONMENTAL CONDITIONS	23 deg. C, 50 % RH, 968 hPa	TESTED BY	Anderson Chen

Frequency (MHz)	Result	Polarity	Azimuth	Field Strength (V/m)	Obser-vation	Performance Criterion
80 -1000	PASS	V&H	0	3	Note	A
80 -1000	PASS	V&H	90	3		
80 -1000	PASS	V&H	180	3		
80 -1000	PASS	V&H	270	3		

NOTE: There was no change compared with the initial operation during the test.

5.7 ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST (EFT)

5.7.1 TEST SPECIFICATION

Basic Standard:	IEC 61000-4-4
Test Voltage:	Power Line - 1 kV
	Signal/Control Line - 0.5kV
Polarity:	Positive/Negative
Impulse Frequency:	5 kHz
Impulse Wave shape :	5/50 ns
Burst Duration:	15 ms
Burst Period:	300 ms
Test Duration:	Not less than 1 min.

5.7.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
EMC PARTNER, TRANSIENT	TRA1Z332N	683	Feb.15, 2007
EMC PARTNER, CN-EFT100	CN-EFT100	352	NA
Adapter (EMC Partner)	NA	SU1ADA-002	Dec.24, 2006
EMC Partner(Software)	Test Manger_V1.53	NA	NA

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in EMS room B.

5.7.3 TEST PROCEDURE

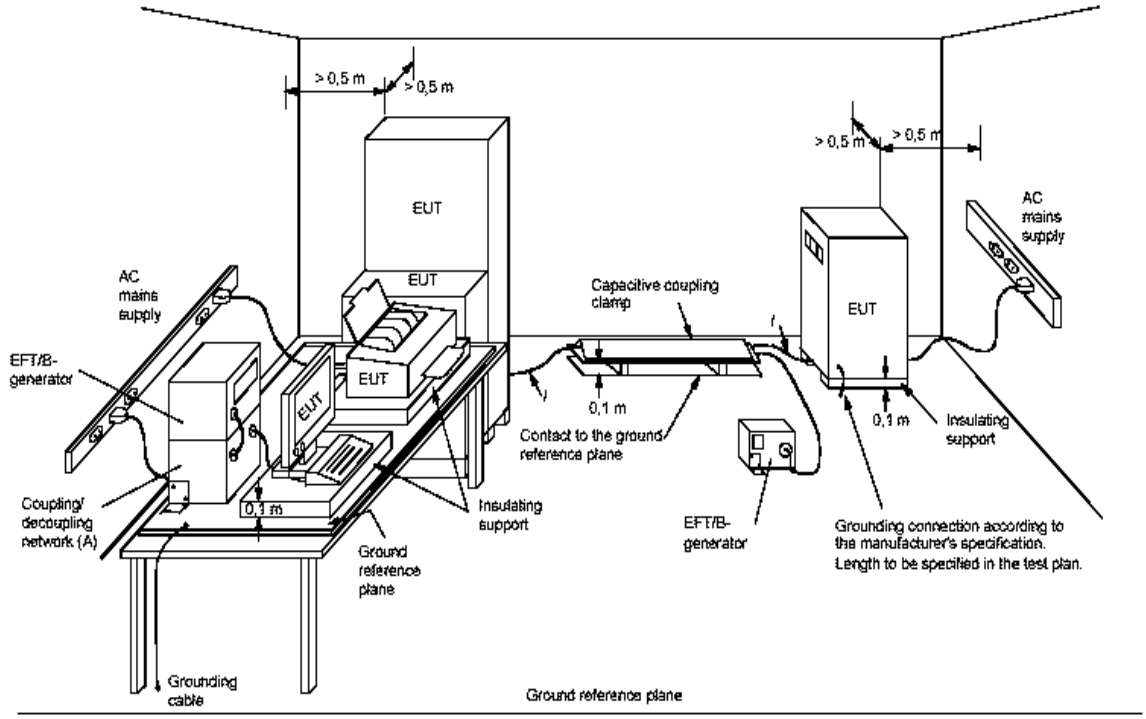
a. Both positive and negative polarity discharges were applied.

b. The length of the "hot wire" from the coaxial output of the EFT generator to the terminals on the EUT should be 0.5m±0.05m.

c. The duration time of each test sequential was 1 minute.

d. The transient/burst waveform was in accordance with IEC 61000-4-4, 5/50ns.

5.7.4 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

5.7.5 TEST RESULTS

TEST MODE	Mode 1	INPUT POWER	230Vac, 50 Hz
ENVIRONMENTAL CONDITIONS	23 deg. C, 56 % RH, 968 hPa	TESTED BY	Peter Lo

I. POWER PORT

VOLTAGE (kV)	TEST POINT	POLARITY (+/-)	OBSERVATION	PERFORMANCE CRITERION
1	L1	+/-	Note	A
1	L2	+/-	Note	A
1	GND	+/-	Note	A
1	L1, L2-GND	+/-	Note	A

II. SIGNAL PORTS AND CONTROL PORTS

VOLTAGE (kV)	TEST POINT	POLARITY (+/-)	OBSERVATION	PERFORMANCE CRITERION
0.5	LAN(100Mbps)	+/-	Note	A
0.5	LAN(1000Mbps)	+/-	Note	A

NOTES: There was no change compared with the initial operation during the test.

5.8 SURGE IMMUNITY TEST

5.8.1 TEST SPECIFICATION

Basic Standard:	IEC 61000-4-5
Wave-Shape:	Combination Wave 1.2/50 us Open Circuit Voltage 8 /20 us Short Circuit Current
Test Voltage:	Power line-0.5,1,2KV
Surge Input/Output:	L1-L2 / L1-G / L2-G
Generator Source Impedance:	2 ohm between networks 12 ohm between network and ground
Polarity:	Positive/Negative
Phase Angle (degree):	0 / 90 / 180 / 270
Pulse Repetition Rate:	1 time / min. (maximum)
Number of Tests:	5 positive and 5 negative at selected points

5.8.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
EMC PARTNER, TRANSIENT	TRA1Z332N	683	Feb. 15, 2007
EMC PARTNER, CDN-UTP8	CDN-UTP8	012	NA
Adapter (EMC PARTNER)	NA	SU1ADA-002	Dec. 24, 2006
EMC Partner(Software)	Test Manger_V1.53	NA	NA
KeyTek, EMS Simulator	EMC Pro	9712339	Mar. 27, 2007
Adapter (EMC Pro)	NA	SU1ADA-001	Dec. 24.2006
KeyTek(Software)	CEWare32_V2.06	NA	NA

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in EMS room A.

5.8.3 TEST PROCEDURE

a. For EUT power supply:

The surge is to be applied to the EUT power supply terminals via the capacitive coupling network. Decoupling networks are required in order to avoid possible adverse effects on equipment not under test that may be powered by the same lines, and to provide sufficient decoupling impedance to the surge wave. The power cord between the EUT and the coupling/decoupling networks shall be 2 meters in length (or shorter).

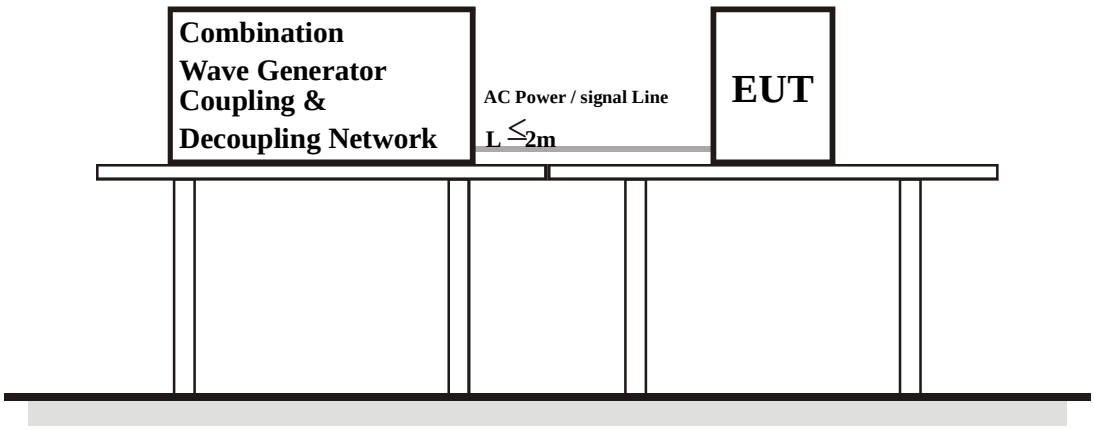
b. For test applied to unshielded unsymmetrically operated interconnection lines of EUT:

The surge is applied to the lines via the capacitive coupling. The coupling / decoupling networks shall not influence the specified functional conditions of the EUT. The interconnection line between the EUT and the coupling/decoupling networks shall be 2 meters in length (or shorter).

c. For test applied to unshielded symmetrically operated interconnection / telecommunication lines of EUT:

The surge is applied to the lines via gas arrestors coupling. Test levels below the ignition point of the coupling arrestor cannot be specified. The interconnection line between the EUT and the coupling/decoupling networks shall be 2 meters in length (or shorter).

5.8.4 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

5.8.5 TEST RESULTS

TEST MODE	Mode 1	**INPUT POWER**	230Vac, 50 Hz
ENVIRONMENTAL CONDITIONS	24 deg. C, 55 % RH, 968 hPa	**TESTED BY**	Mitch Jen

I. POWER PORT

VOLTAGE (kV)	TEST POINT	POLARITY (+/-)	OBSERVATION	PERFORMANCE CRITERION
0.5, 1	L1-L2	+/-	NOTE	A
0.5, 1, 2	L1-G	+/-	NOTE	A
0.5, 1, 2	L2-G	+/-	NOTE	A

NOTES: There was no change compared with the initial operation during the test.

5.9 IMMUNITY TO CONDUCTED DISTURBANCES INDUCED BY RF FIELDS (CS)

5.9.1 TEST SPECIFICATION

Basic Standard:	IEC 61000-4-6
Frequency Range:	0.15 MHz - 80 MHz
Voltage Level:	3 Vrms
Modulation:	1kHz Sine Wave, 80%, AM Modulation
Frequency Step:	1 % of fundamental
Coupled Cable:	Power Mains, Unshielded Signal / Control Line
Coupling Device:	CDN-M3 (3 wires) / CLAMP
Dwell Time	3 seconds

5.9.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
R&S Signal Generator	SML 01	102731	Jan. 05, 2007
AR Amplifier	75A250AM1	307297	NA
BOONTON RF Voltage Meter	4230	13302	Nov. 13, 2006
LUTHIE EM Injection Clamp	EM-101	35453	Apr. 11, 2007
FCC CDN M2	FCC-801-M2-16A	03048	Dec. 15, 2006
FCC CDN M3	FCC-801-M3-16A	03055	Dec. 15, 2006
Fischer Custom Communications Inc Coupling Decoupling Network	FCC-801-T2	02025	Oct. 05, 2007
Fischer Custom Communications Inc Coupling Decoupling Network	FCC-801-T4	02030	Oct. 28, 2006
Fischer Custom Communications Inc Coupling Decoupling Network	FCC-801-T8	02036	Oct. 28, 2006
ADT CS Test Workbench(Software)	ADT_CS_V73.90	NA	NA

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Chamber Room No. B.

5.9.3 TEST PROCEDURE

a. The EUT shall be tested within its intended operating and climatic conditions.

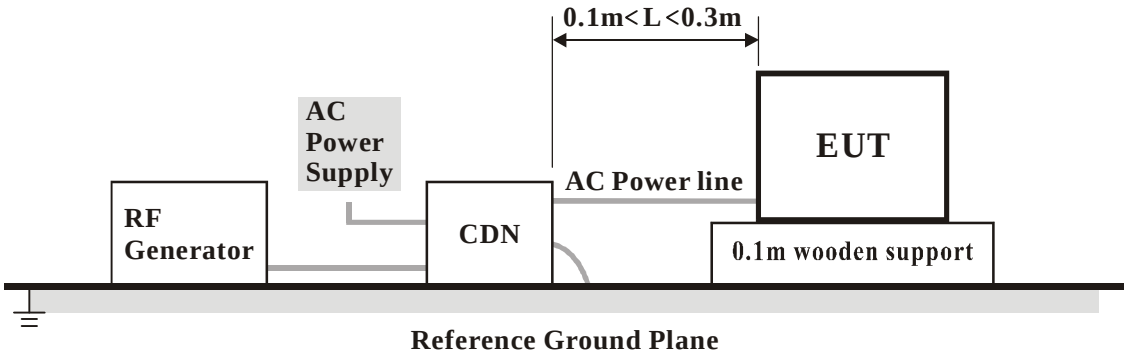
b. The test shall be performed with the test generator connected to each of the coupling and decoupling devices in turn, while the other non-excited RF input ports of the coupling devices are terminated by a 50-ohm load resistor.

c. The frequency range is swept from 150 kHz to 80 MHz, using the signal level established during the setting process and with a disturbance signal of 80 % amplitude. The signal is modulated with a 1 kHz sine wave, pausing to adjust the RF signal level or the switch coupling devices as necessary. The sweep rate shall not exceed 1.5×10^{-3} decades/s. The step size shall not exceed 1 % of the start and thereafter 1 % of the preceding frequency value where the frequency is swept incrementally.

d. The dwell time at each frequency shall not be less than the time necessary for the EUT to be exercised, and able to respond. Sensitive frequencies such as clock frequency(ies) and harmonics or frequencies of dominant interest, shall be analyzed separately.

e. Attempts should be made to fully exercise the EUT during testing, and to fully interrogate all exercise modes selected for susceptibility.

5.9.4 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

NOTE:

FLOOR-STANDING EQUIPMENT

The equipment to be tested is placed on an insulating support of 0.1 meters height above a ground reference plane. All relevant cables shall be provided with the appropriate coupling and decoupling devices at a distance between 0.1 meters and 0.3 meters from the projected geometry of the EUT on the ground reference plane.

5.9.5 TEST RESULTS

TEST MODE	Mode 1	INPUT POWER	230Vac, 50 Hz
ENVIRONMENTAL CONDITIONS	24 deg. C, 56 % RH, 968 hPa	TESTED BY	Anderson Chen

FOR MAINS POWER:

Frequency (MHz)	Voltage level (Vr.m.s.)	Cable	Injection Method	Obser-vation	Performance Criterion
0.15 –80	3	AC power line	CDN-M3	Note	A

FOR SIGNAL / CONTROL LINE:

Frequency (MHz)	Voltage Level (Vr.m.s.)	Cable	Injection Method	Obser-vation	Performance Criterion
0.15 –80	3	RJ-45(100Mbps)	CLAMP	Note	A
0.15 –80	3	RJ-45(1000Mbps)	CLAMP	Note	A

NOTE: There was no change compared with the initial operation during the test.

5.10 POWER FREQUENCY MAGNETIC FIELD IMMUNITY TEST

5.10.1 TEST SPECIFICATION

Basic Standard:	IEC 61000-4-8
Frequency Range:	50Hz
Field Strength:	1 A/m
Observation Time:	1 minute
Inductance Coil:	Helmholtz coil, diameter 1.5m

5.10.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
BELL, Triaxial Elf Magnetic Field Meter	4090	NA	Dec. 25, 2006
MONTENA, Helmholt Coil	HC150-360	NA	NA

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in EMS room.

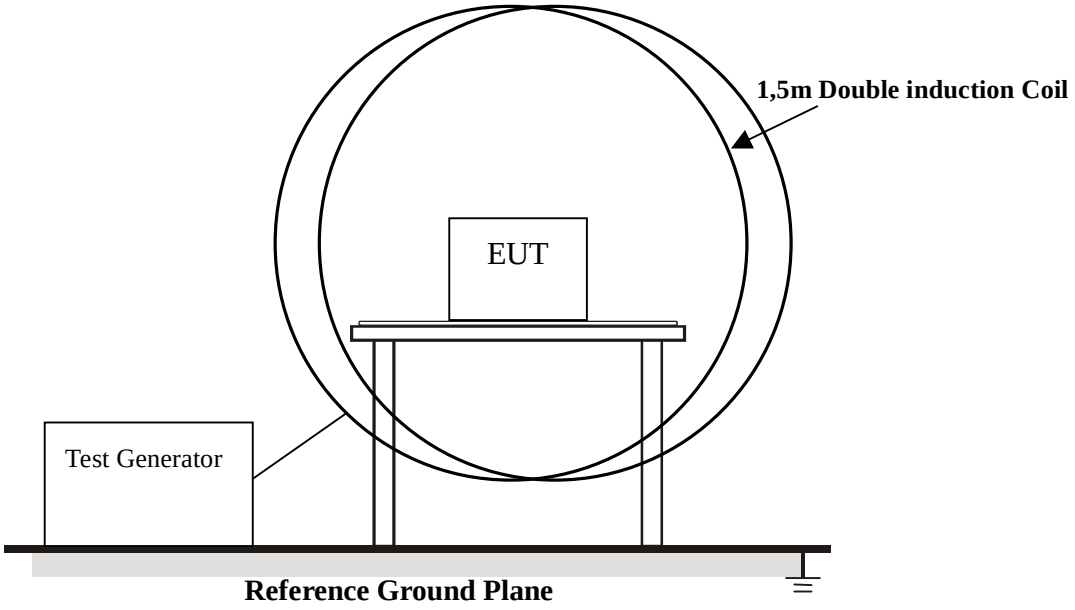
5.10.3 TEST PROCEDURE

a. The equipment is configured and connected to satisfy its functional requirements.

b. The power supply, input and output circuits shall be connected to the sources of power supply, control and signal.

c. The cables supplied or recommended by the equipment manufacturer shall be used. 1 meter of all cables used shall be exposed to the magnetic field.

5.10.4 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

NOTE:

TABLETOP EQUIPMENT
The equipment shall be subjected to the test magnetic field by using the induction coil of standard dimension (diameter 1.5m). The EUT placement shall then be rotated by 90 degrees in order to expose to the test field with different orientations.

5.10.5 TEST RESULTS

TEST MODE	Mode 1	INPUT POWER	230Vac, 50 Hz
ENVIRONMENTAL CONDITIONS	24 deg. C, 55 % RH, 968 hPa	TESTED BY	Mitch Jen

DIRECTION	RESULTS	OBSERVATION	PERFORMANCE CRITERION
X	PASS	Note	A
Y	PASS	Note	A
Z	PASS	Note	A

NOTE: There was no change compared with the initial operation during the test.

5.11 VOLTAGE DIP/SHORT INTERRUPTIONS/VOLTAGE VARIATIONS (DIP) IMMUNITY TEST

5.11.1 TEST SPECIFICATION

Basic Standard:	IEC 61000-4-11
Test Duration Time:	Minimum three test events in sequence
Interval between Event:	Minimum ten seconds
Phase Angle (degree):	0 / 180
Test Cycle:	3 times

5.11.2 TEST INSTRUMENTS

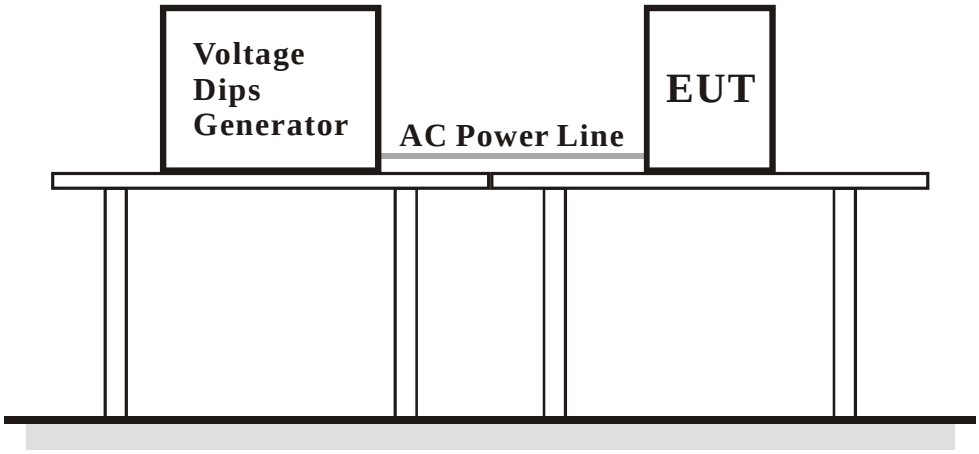
DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
EMC PARTNER, TRANSIENT	TRA1Z332N	683	Feb. 15, 2007
Adapter (EMC PARTNER)	NA	SU1ADA-002	Dec. 24, 2006
EMC Partner(Software)	Test Manger_V1.53	NA	NA
KeyTek, EMS Simulator	EMC Pro	9712339	Feb. 22, 2007
Adapter (EMC Pro)	NA	SU1ADA-001	Dec. 24.2006
KeyTek(Software)	CEWare32_V2.06	NA	NA

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in EMS room A.

5.11.3 TEST PROCEDURE

The EUT shall be tested for each selected combination of test levels and duration with a sequence of tree dips/interruptions with intervals of 10 s minimum (between each test event). Each representative mode of operation shall be tested. Abrupt changes in supply voltage shall occur at zero crossings of the voltage waveform.

5.11.4 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

5.11.5 TEST RESULTS

TEST MODE	Mode 1	**INPUT POWER**	230Vac/100Vac, 50 Hz
ENVIRONMENTAL CONDITIONS	24 deg. C, 55 % RH, 968 hPa	**TESTED BY:**	Anderson Chen

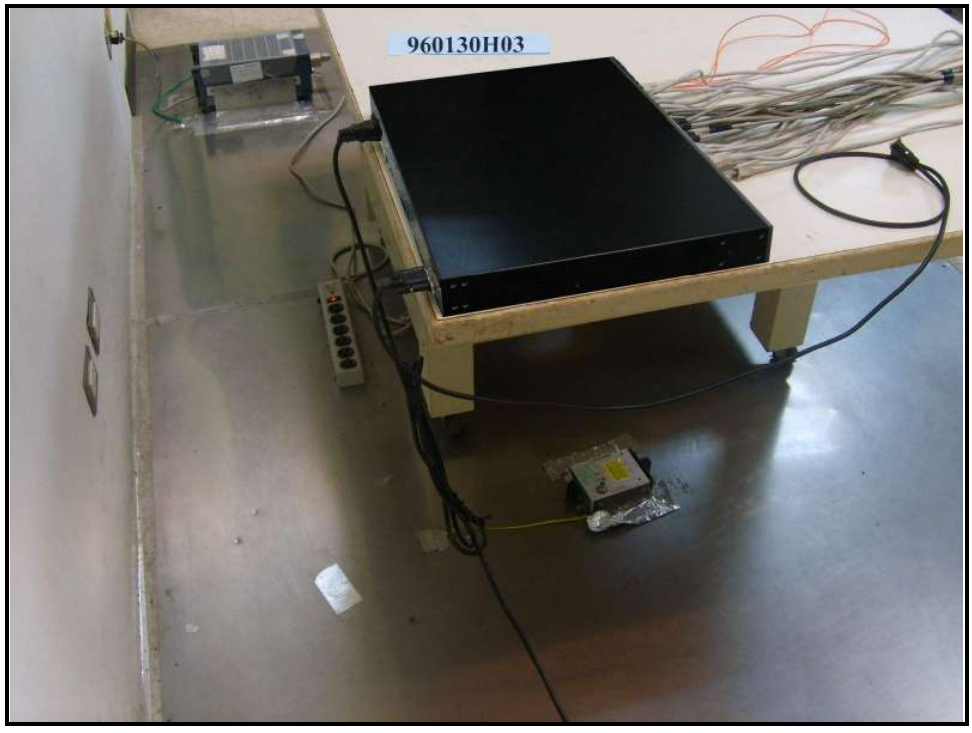
Input Power for testing: 230Vac, 50 Hz (Normal Voltage)				
VOLTAGE % REDUCTION	**PERIODS**	**RESULTS**	**OBSERVATION**	**PERFORMANCE CRITERION**
>95	0.5	PASS	Note (1)	A
30	25	PASS	Note (1)	A
>95	250	PASS	Note (2)	B

Input Power for testing: 100Vac, 50 Hz (Minimum Voltage)				
VOLTAGE % REDUCTION	**PERIODS**	**RESULTS**	**OBSERVATION**	**PERFORMANCE CRITERION**
>95	0.5	PASS	Note (1)	A
30	25	PASS	Note (1)	A
>95	250	PASS	Note (2)	B

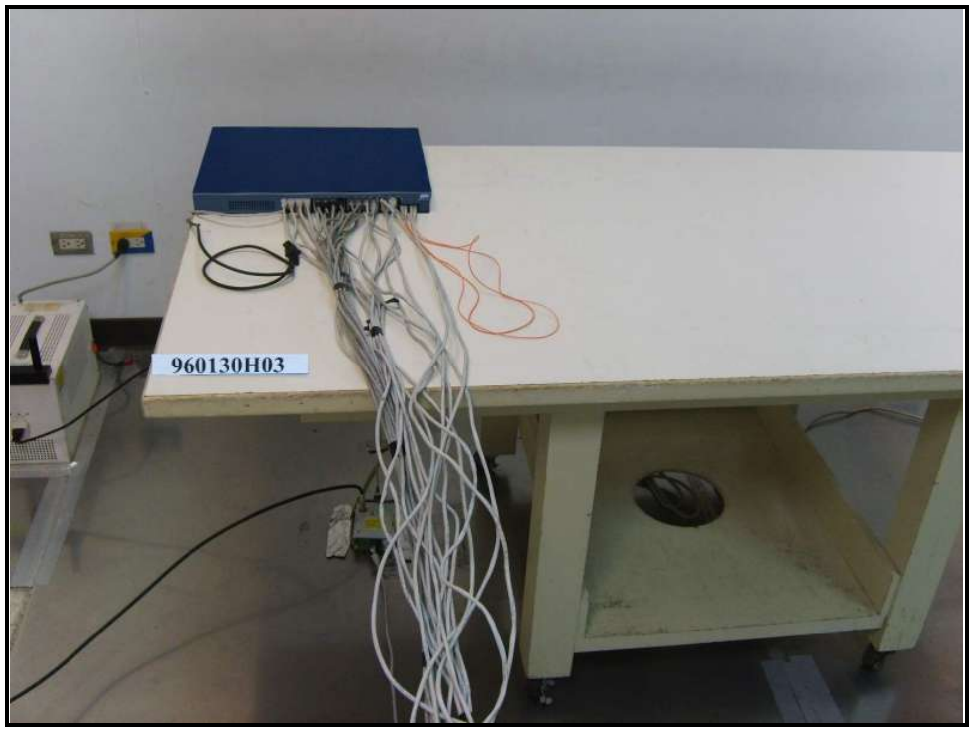
NOTES:(1) There was no change compared with initial operation during the test.
(2) The EUT shut down during the test, but could be self-recovered to after the test.

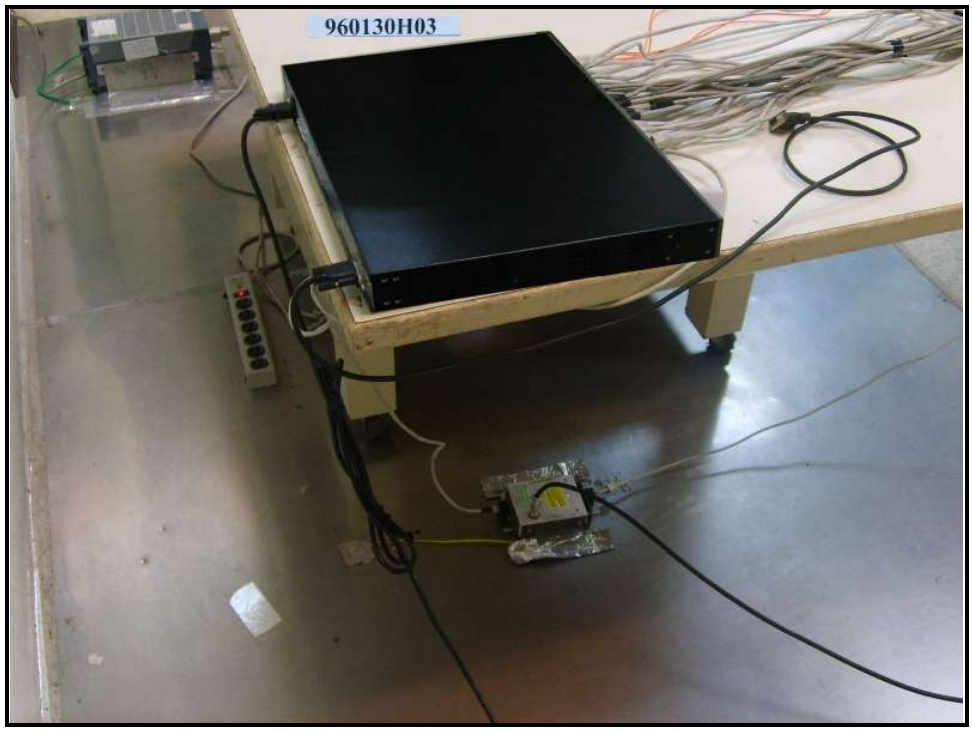
6 PHOTOGRAPHS OF THE TEST CONFIGURATION

CONDUCTED EMISSION TEST

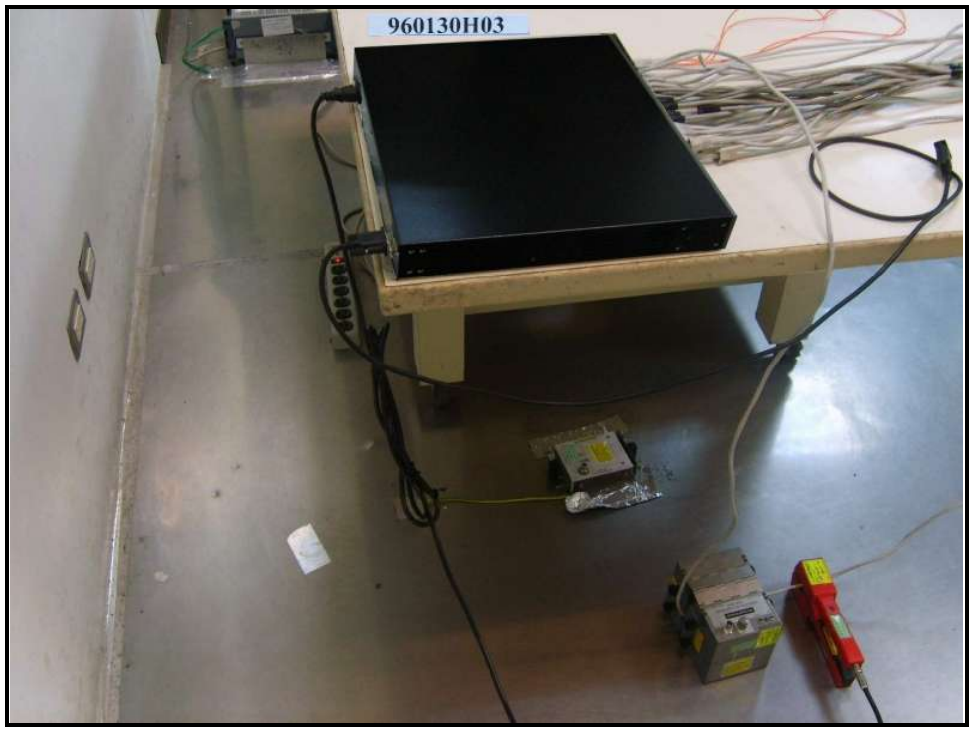


TELECOMMUNICATION PORT OF
CONDUCTED EMISSION TEST



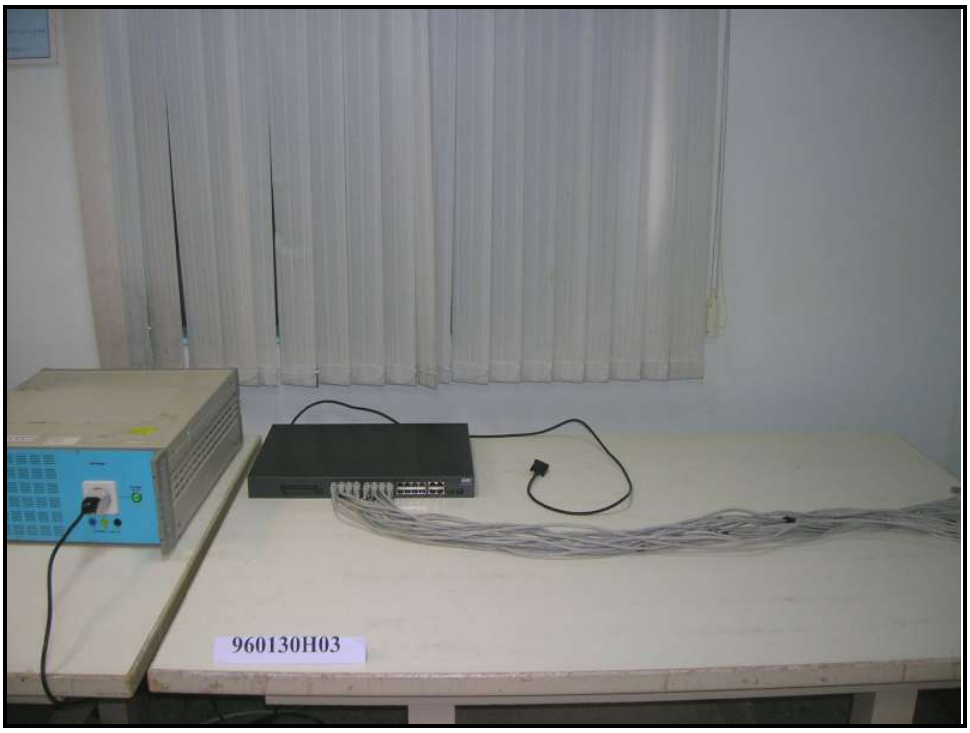


TELECOMMUNICATION PORT OF CONDUCTED EMISSION TEST



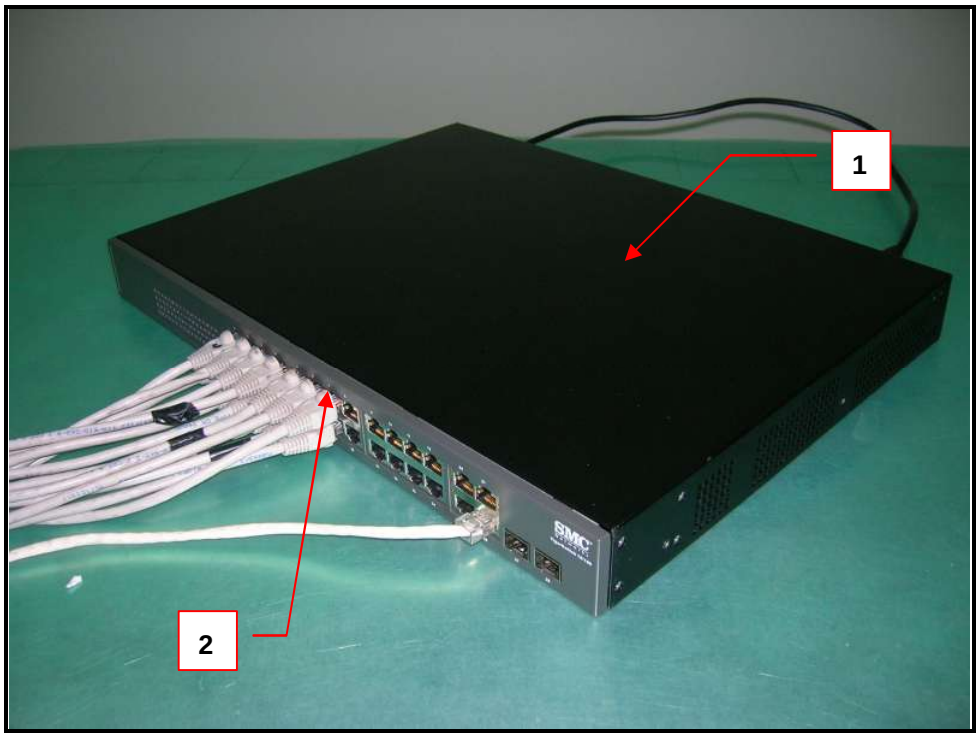
RADIATED EMISSION TEST

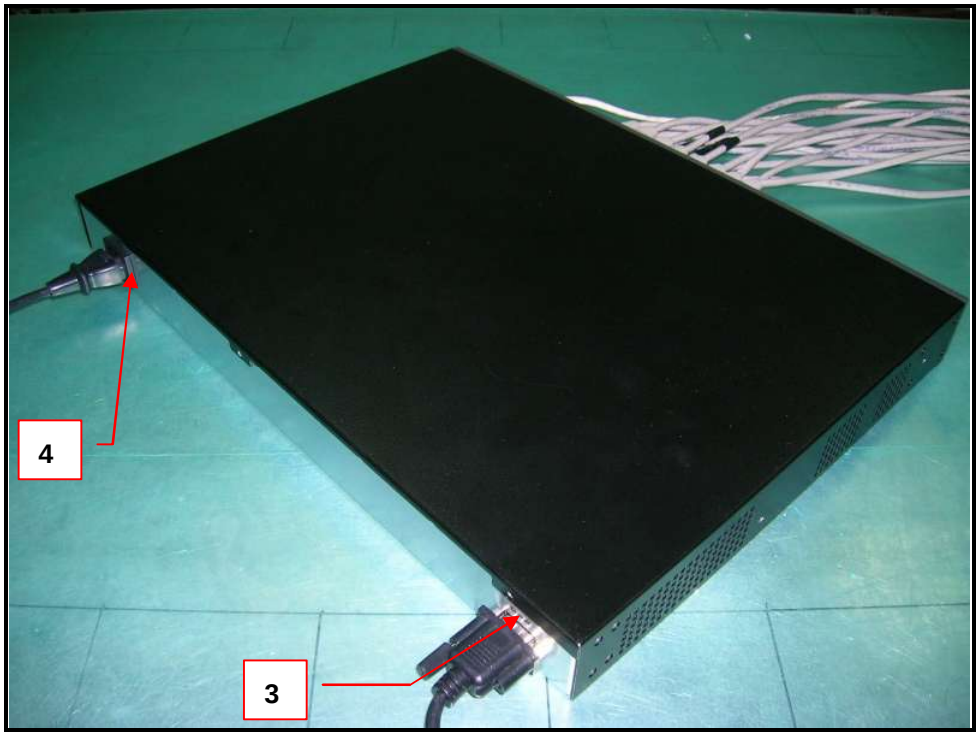
HARMONICS EMISSION TEST & VOLTAGE FLUCTUATIONS AND FLICKER TEST



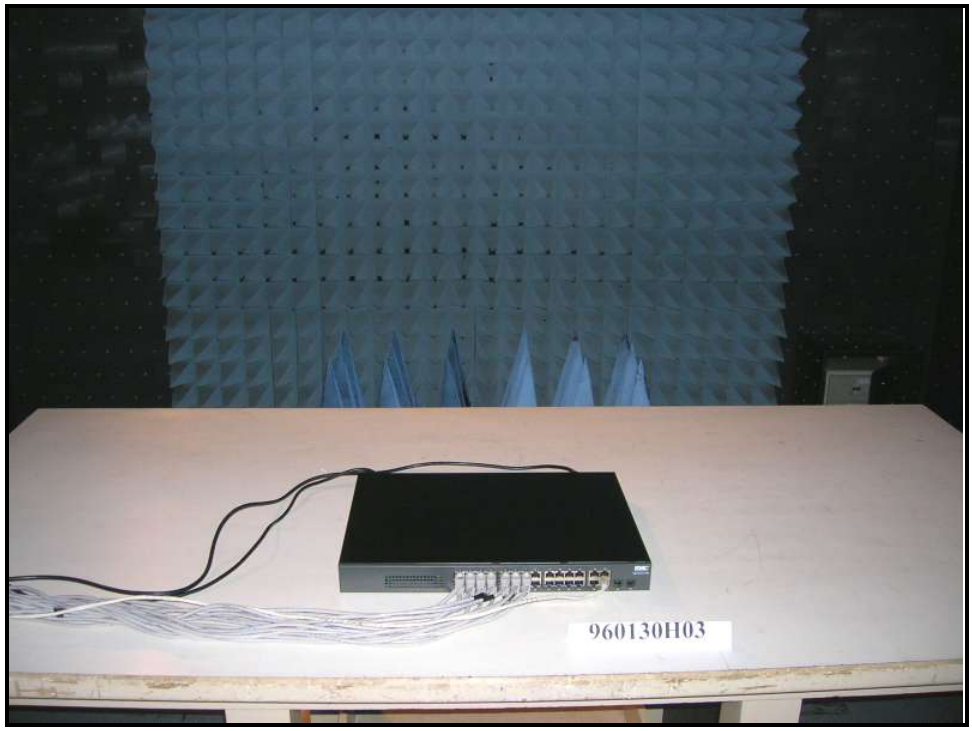
ESD TEST

DESCRIPTION OF TEST POINT



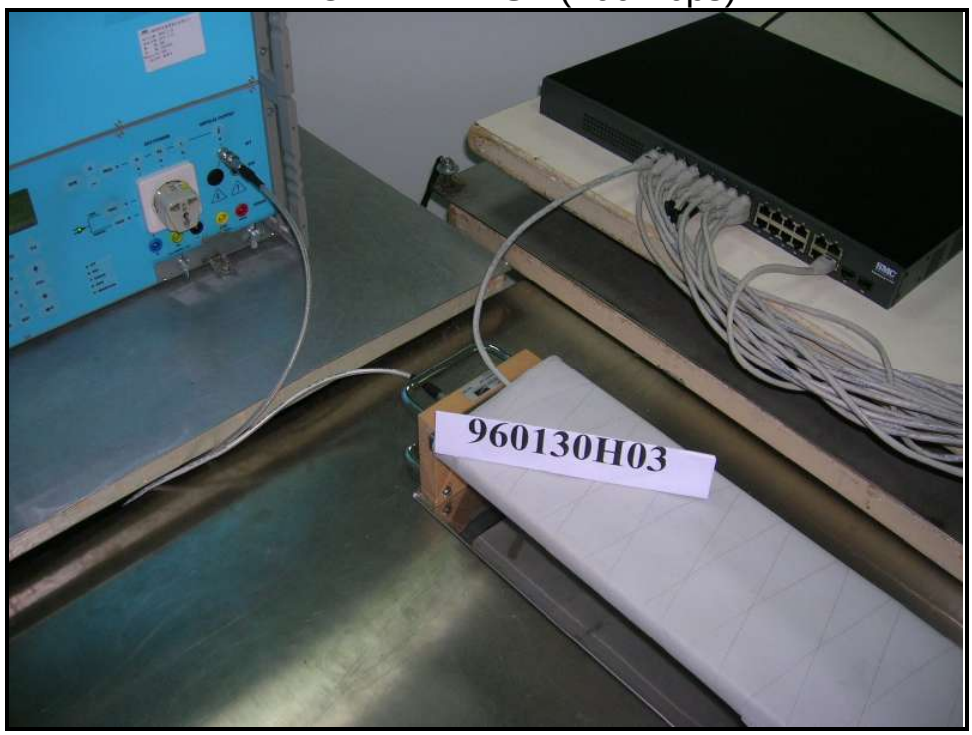


RS TEST



EFT TEST

EFT CLAMP TEST (100Mbps)

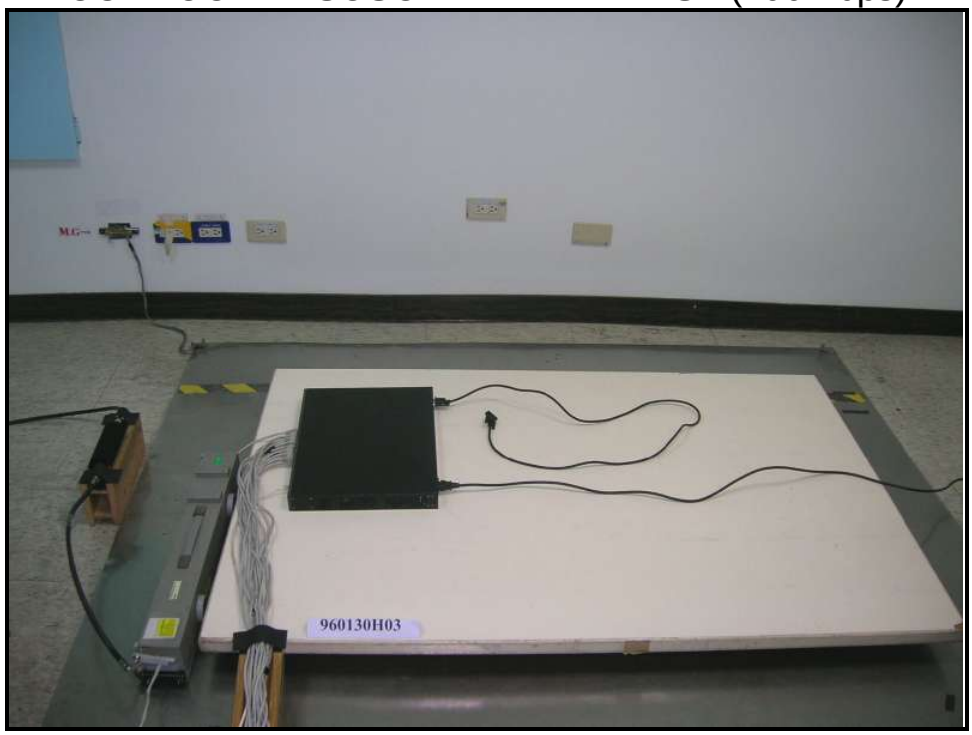


EFT CLAMP TEST (1000Mbps)

SURGE & VOLTAGE DIPS
AND INTERRUPTIONS TEST

CONDUCTED SUSCEPTIBILITY TEST

CONDUCTED SUSCEPTIBILITY TEST (100Mbps)



CONDUCTED SUSCEPTIBILITY TEST (1000Mbps)

POWER-FREQUENCY MAGNETIC FIELDS TEST

7 APPENDIX - INFORMATION ON THE TESTING LABORATORIES

We, ADT Corp., were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025:

USA	FCC, UL, A2LA
Germany	TUV Rheinland
Japan	VCCI
Norway	NEMKO
Canada	INDUSTRY CANADA, CSA
R.O.C.	CNLA, BSMI, NCC
Netherlands	Telefication
Singapore	PSB, GOST-ASIA (MOU)
Russia	CERTIS (MOU)

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: www.adt.com.tw/index.5/phtml.
If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:
Tel: 886-2-26052180
Fax: 886-2-26052943

Hsin Chu EMC/RF Lab:
Tel: 886-3-5935343
Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety/Telecom Lab:
Tel: 886-3-3183232
Fax: 886-3-3185050

Email: service@adt.com.tw
Web Site: www.adt.com.tw

The address and road map of all our labs can be found in our web site also.